DEPARTMENT OF TOWN PLANNING

Planning department envisions ensuring qualitative education with hands on experience in relevance to the Planning field. Planning has its roots in engineering, law, architecture, public health and the social sciences. Planners today combine design, analytical and communication skills to help communities manage change. Planning is both people-oriented and future-oriented. Its future is full of opportunities and challenges. In particular, technological advances in communications and computers are changing the shape and form of cities, and how planning for the future will take place.

Vision

The Department of Town Planning views planning as a platform for communities to chart their unique paths toward environmental, economic, and social sustainability. Through engaged teaching, innovative research, and a core emphasis on equity, we foster planning processes in which the three pillars of sustainability work in concert with one another for the creation of socially just communities.

Mission

Planning empowers students, researchers, and community members to bring about the change that they want to see in the world. We believe that the answers to today's biggest social challenges—from climate change and environmental justice to affordable housing and workforce development—require creative, multidisciplinary, and community-driven solutions. Our students are prepared to think critically and comprehensively about these solutions and to foster meaningful community engagement as part of the decision-making process. Our faculty members are experts in all domains of planning, bringing innovative methods and data sources to the critical questions that drive the planning profession. We integrate our research into the classroom and into planning practice, offering our students diverse opportunities to gain on-the-ground experience with local, regional, and international communities. Main Objectives are

- The goal of the program is to produce competent and skilled planning professionals and researchers grounded in critical scholarship and learning.
- To relate knowledge and action through critical study of town planning and urban & regional theories.

- To emphasize multidisciplinary approaches based predominately on social sciences, with some elements of the humanities, sciences, and engineering and design disciplines.
- To focus on the exploration and resolution of planning issues from the point of view of community interests, emphasizing the promotion of equitable and economical use of natural and human resources to improve the quality of life in human settlements.

Program Educational Objectives (PEOs)

PEO-1: To develop strong understanding of fundamentals in Town Planning among the students.

PEO-2: To provide technical knowledge to formulate, solve and analyses Town Planning problems for research and development programs suitable for research, acquiring doctoral degree, by actively participating in national level research programs, teaching and research at university level etc.

PEO-3: To produce students with the required theoretical background, technical skills and knowledge of government policies to work professionally in the area of Town Planning.

PEO-4: To prepare students for successful career and technical knowledge with the values and social concern to meet the requirements at National and International levels

The course is project-oriented and stress will be put on the importance of its connection to the broader decision-making context of an urban milieu in innovative ways.

Programme Outcomes (PO's)

The programme has the following specific learning objectives

1. **Technical and management knowledge**: To train students with a bias on practical/ experiential orientation based on scientific knowledge in advancement of sustainable urban development.
2. **Problem analysis:** To develop professional personnel and solutions in design, planning and management of urban areas.
3. **Design & development of solutions:** To establish a foundation for the graduate to practice, pursue and/or participate in professional activities/development in the urban milieu.
4. **Analysis, Design and Research**: To engage in research on various aspects related to the urban environment. Integration of analytical research within the urban design and planning projects, actively utilizing data from a wide range of sources and fields such

as history, theory, communications, sociology, architecture, engineering, landscaping, economics, political science, history, geography etc.

5. **Experiment:** Experimentation with different approaches to sustainable urban development in an environmentally sustainable manner.
6. **Modern tool usage:** To train students who will create, conserve, restore and offer leadership on useful and culturally valuable and historic urban environments.
7. **The society and culture:** To establish a broad basis of debate on the critical environmental, social, cultural, economic and design issues confronting contemporary urban societies, and the role that sustainable urban development can play in addressing these fundamental issues.
8. **Environment and sustainability:** To develop an understanding of urban environmental issues, by developing vital and sustainable urban design concepts.
9. **Individual and team work:** To develop successful strategies among students for the implementation of urban development initiatives.
10. **Communication:** To define and analyse current urban development issues.
11. **Project management and finance:** To apply theory to specific projects by working successfully with public, private and international planning institutions.
12. **Ethics:** To impart Ethical aspects of planning, science, and technology may be discussed in terms of research as well as professional practice. The planning process must continuously pursue and faithfully serve the public interest and wellbeing.

Correlation between the POs and the PEOs

PEOs												
	1	2	3	4	5	6	7	8	9	10	11	12
I	✔	✔	✔	✔	✔		✔					
II				✔			✔	✔	✔			
III		✔		✔		✔	✔			✔	✔	✔
IV			✔	✔	✔		✔				✔	✔

Program Specific Outcomes (PSOs):

PSO-1: Acquire general planning knowledge and global dimensions of planning and apply the acquired knowledge of Town planning and design techniques in real practice.

PSO-2: Learn planning skills & planning process methods and to analyse a system, component or process in the area of planning in real time problems.

PSO-3: Design a system, component, or process in more than one area of civil Engineering Construction and learn values & ethics in the profession.

PSO-4: Conduct investigations and address complex civil Engineering Construction problems; Development and utilization of innovative tools and techniques that are suitable in civil engineering construction discipline.

COURSE STRUCTURE FOR B. TECH (TOWN PLANNING)

SEMESTER I

S.No	Course Code	Course Title	Periods per Week				Credits	Marks			End Exam
			L	S	P/O	Total		Int	Ext	Total	W/P/J
	Professional Core										
1	PL21B1C1	Introduction to Physical Planning	4	0	0	4	4	50	50	100	W
2	PL21B1C2	Materials for Settlement Planning	4	0	0	4	4	50	50	100	W
3	PL21B1C3	Elements of Geology & Settlement Geography	4	0	0	4	4	50	50	100	W
4	PL21B1C4	Structural Systems for Settlements	4	0	0	4	4	50	50	100	W
	Laboratories/Studios/Practical										
5	PL21B1S1	Graphics & Presentation Techniques for Planning	0	10	0	10	10	100	100	200	J
6	PL21B1P1	Computer Applications	0	0	4	4	4	50	50	100	P
	Mandatory Course										
7	MC21B101	UHV-1 (AICTE)	1	0	0	1	0	0	0	0	Nil
		Total	**17**	**10**	**4**	**31**	**30**			**700**	

Note: W- Written, P- Practical, J- Jury (all practical exams will be followed by viva - voice), UHV – Universal Human Values

SEMESTER II

S.No	Course Code	Course Title	Periods per Week				Credits	Marks			End Exam
			L	S	P/O	Total		Int	Ext	Total	W/P/J
	Professional Core										
1	PL21B2C1	Demography & Urbanization	4	0	0	4	4	50	50	100	W
2	PL21B2C2	Quantitative Methods	3	0	0	3	3	50	50	100	W
3	PL21B2C3	Estimation & Specifications	4	0	0	4	4	50	50	100	W
4	PL21B2C4	Economics & Sociology	3	0	0	3	3	50	50	100	W
	Laboratories/Studios/Practical										
5	PL21B2S1	Settlements Mapping and Visual Representation	0	9	0	9	9	100	100	200	J
6	PL21B2P1	Surveying	2	0	2	4	4	50	50	100	P
	Ability Enhancement Course										
7	PL21B2K1	Communication Skills for Planning	3	0	0	3	3	50	50	100	P
	Mandatory Course										
8	MC21B201	Environmental Studies	1	0	0	1	0	0	0	0	Nil
		Total	**19**	**10**	**2**	**31**	**30**			**700**	

Note: W- Written, P- Practical, & J- Jury (all practical exams will be followed by viva – voice)

SEMESTER III

S.No	Course Code	Course Title	Periods per Week				Credits	Marks			End Exam
			L	S	P/O	Total		Int	Ext	Total	W/P/J
	Professional Core										
1	PL21B3C1	Traffic &Transportation Planning	3	0	0	3	3	50	50	100	W
2	PL21B3C2	Planning Techniques	3	0	0	3	3	50	50	100	W
3	PL21B3C3	Housing & Community Planning	3	0	0	3	3	50	50	100	W
	Laboratories/Studios/Practical										
4	PL21B3S1	Site Planning & Built Environment	0	10	0	10	10	100	100	200	J
5	PL21B3P1	CAD Applications in Planning	0	0	6	6	6	100	100	200	P
	Ability Enhancement Course										
6	PL21B3K1	Data Analytics in Planning	3	0	0	3	3	50	50	100	W
	Mandatory Course										
7	MC21B301	Indian Constitution	1	0	0	1	0	0	0	0	Nil
	Open Elective										
8	PL21B3O1	Open Elective	2	0	0	2	2	100	0	100	Nil
		Total	**15**	**10**	**6**	**31**	**30**			**900**	

Note: W- Written, P- Practical & J- Jury (all practical exams will be followed by viva – voice)

SEMESTER IV

S.No	Course Code	Course Title	Periods per Week				Credits	Marks			End Exam
			L	S	P/O	Total		Int	Ext	Total	W/P/J
	Professional Core										
1	PL21B4C1	Planning Principles	4	0	0	4	4	50	50	100	W
2	PL21B4C2	Infrastructure Planning	4	0	0	4	4	50	50	100	W
3	PL21B4C3	Planning for Informal sector	4	0	0	4	4	50	50	100	W
4	PL21B4C4	Rural Development	4	0	0	4	4	50	50	100	W
	Laboratories/Studios/Practical										
5	PL21B4S1	Neighborhood& Area Planning	0	9	0	9	9	100	100	200	J
	Skill Oriented Course										
6	PL21B4K1	Geographical Information Systems	0	0	3	3	3	100	100	200	P
	Mandatory Course										
7	MC21B401	Essence of Indian Traditional Knowledge (AICTE)	1	0	0	1	0	0	0	0	Nil
	Open Elective										
8	PL21B4O1	Open Elective	2	0	0	2	2	100	0	100	Nil
		Total	**19**	**9**	**3**	**31**	**30**			**900**	

Note: W- Written, P- Practical & J- Jury (all practical exams will be followed by viva – voice)

SEMESTER V

S.No	Course Code	Course Title	Periods per Week				Credits	Marks			End Exam
			L	S	P/O	Total		Int	Ext	Total	W/P/J
	Professional Core										
1	PL21B5C1	Urban Design & Conservation	3	0	0	3	3	50	50	100	W
2	PL21B5C2	Planning & Management for Disasters	3	0	0	3	3	50	50	100	W
3	PL21B5C3	Development Planning	3	0	0	3	3	50	50	100	W
4	PL21B5C4	Planning Theory and Urban Policy	3	0	0	3	3	50	50	100	W
	Laboratories/Studios/Practical										
5	PL21B5S1	Rural Area Planning Studio	0	10	0	10	10	100	100	200	J
	Workshops										
6	PL21B5W1	Planning Workshop I (Traffic Studies)	1	0	2	3	3	50	50	100	J
	Professional Elective-1										
7	PL21B5E1	Real Estate Development	3	0	0	3	3	50	50	100	W
	PL21B5E2	Affordable Housing									
	PL21B5E3	Urban Sanitation									
	Open Elective										
8	PL21B5O1	Open Elective	2	0	0	2	2	100	0	100	Nil
		Total	**18**	**10**	**2**	**30**	**30**			**900**	

Note: W- Written, P- Practical & J- Jury (all practical exams will be followed by viva – voice)

SEMESTER VI

S.No	Course Code	Course Title	Periods per Week				Credits	Marks			End Exam
			L	S	P/O	Total		Int	Ext	Total	W/P/J
	Professional Core										
1	PL21B6C1	Regional Planning	3	0	0	3	3	50	50	100	W
2	PL21B6C2	Project Formulation, Appraisal & Management	3	0	0	3	3	50	50	100	W
3	PL21B6C3	Planning Legislation	3	0	0	3	3	50	50	100	W
4	PL21B6C4	Environmental Planning & Management	3	0	0	3	3	50	50	100	W
	Laboratories/Studios/Practical										
5	PL21B6S1	Urban Planning Studio	0	9	0	9	9	100	100	200	J
6	PL21B6SE1	Seminar	0	0	2	2	2	50	50	100	P
7	PL21B6PT1	Practical Training-I	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	P/F
	Workshops										
8	PL21B6W1	Planning Workshop II (Infrastructure Studies)	1	0	1	2	2	50	50	100	J
	Professional Elective-2										
9	PL21B6E1	Seminar on Ethics, Values, Philosophy	0	0	3	3	3	50	50	100	P
	PL21B6E2	Seminar on Changing Context For Planning In Relation With Other Disciplines.									
	PL21B6E3	Culture And Cities	3	0	0						W
	Open Elective										
10	PL21B6O1	Open Elective	2	0	0	2	2	100	0	100	Nil
		Total	**18**	**9**	**3**	**30**	**30**			**1000**	

Note: W- Written, P- Practical & J- Jury (all practical exams will be followed by viva – voice)

SEMESTER VII

S.No	Course Code	Course Title	Periods per Week				Credits	Marks			End Exam
			L	S	P/O	Total		Int	Ext	Total	W/P/J
	Professional Core										
1	PL21B7C1	Implementation and Financing of Urban projects	3	0	0	3	3	50	50	100	W
2	PL21B7C2	Urban Governance & Management	3	0	0	3	3	50	50	100	W
3	PL21B7C3	Professional Practice	3	0	0	3	3	50	50	100	W
4	PL21B7C4	Land Management	0	0	3	3	3	50	50	100	W
	Laboratories/Studios/Practical										
5	PL21B7S1	Metropolitan and Regional Planning Studio	0	10	0	10	10	100	100	200	J
6	PL21B7TH1	Pre-Thesis	0	3	0	3	3	50	50	100	W
	Professional Elective-3										
7	PL21B7E1	Planning Workshop III (Redevelopment)	0	0	3	3	3	50	50	100	J
	PL21B7E2	Planning Workshop III (Industrial Area Planning)									
	Open Elective										
8	PL21BBO1	Open Elective	2	0	0	2	2	100	0	100	Nil
			11	**13**	**6**	**30**	**30**			**900**	

Note: W- Written, P- Practical & J- Jury (all practical exams will be followed by viva voice)

SEMESTER VIII

S. No	Course Code	Course Title	Periods per Week				Credits	Marks			End Exam
			L	S	P/O	Total		Int	Ext	Total	W/P/J
	Professional Core										
1	PL21B8C1	Project Documentation	3	0	0	3	3	100	0	100	Nil
	Project Work										
2	PL21B8TH1	Planning Thesis	0	15	0	15	15	200	200	400	J
3	PL21B8PT1	Practical Training-II	0	0	9	9	9	0	100	100	J
	Professional Elective										
4	PL21B8E1	Climate Change And Planning	3	0	0	3	3	50	50	100	W
	PL21B8E2	Technology In Managing Cities									
			6	**15**	**9**	**30**	**30**			**700**	

Note: W- Written, P- Practical & J- July (all practical exams will be followed by viva – voice)

***Credits for Internship done during summer vacation of VI semester**

SYLLABUS

SEMESTER – I

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
I	PL21B1C1	INTRODUCTION TO PHYSICAL PLANNING	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the evolution of settlements and To understand Town planning in India, Pre-historic, Vedic, Pre British & British Planning in India, Planning after independence.	1, 3	1, 2
CO2	To know the role and importance of physical planning.	1, 2	1, 2
CO3	To acquire the knowledge on concepts and basics of planning	1, 7	1, 2
CO4	To gain the knowledge on various technologies, planning regulations and developments in planning	1, 2, 4	1, 2, 4
CO5	To understand indicators of planning in terms of development. Studying Regional planning acts., M.R.T.P Act., DCR, zoning, density, height, FSI Structures,	1, 4, 5	2, 4

MODULE – I

Evolution of Human Settlements- Settlement size, pattern and structure as a function of sociocultural, economic, military and religious factors in historical cities. Variations in civilizations - Egyptian, Mesopotamian, Greek, Roman. Town planning in Medieval times and in Renaissance Europe.

Settlement Planning in India- Ancient, medieval, colonial and modern- Prehistoric, Indus Valley Civilization, Mohenjo-Daro, Harappa, Egyptian, Roman, Greek, Inca civilizations, Changing form and pattern of human settlements. Case studies of Indian towns like Chandigarh, Srirangam, Thanjavur, Varanasi, Madhurai, Chidambaram etc.,

MODULE – II

Introduction to history of Planning Thoughts- City Beautiful movement by Daniel Burnham, F.L. Wright's Broad Acre city, man and machine: La Ville Radieuse, Clarence Perry's neighborhood unit formula. Ebenezer Howard's Garden City of Tomorrow, Lewis Mumford's views on new social order, Dynapolis concept of Doxiadis. Patrick Geddes' contributions to evolution of planning thought and his work in India.

Planning in post industrial revolution era: Origin and evolution of civic planning, impact of industrial revolution on town and regional planning. Concepts of garden city, city beautiful, linear city etc. Contributions of all leading masters in planning. Socio-economic impacts of growth of urban areas, rural-urban migration. Impact of technology on urban forms. Urban structure and form - land use distribution.

MODULE – III

Introduction to Contemporary Physical Planning- Planning as a discipline; Role of a Planner; Terminologies in Planning- Definitions of urban, rural, land use, physical and social infrastructure. Fields in Planning; urban, regional, environmental, transportation, infrastructure.

Definitions and basis of planning: Various definitions of town and country planning, goals and objectives of planning, components of planning, benefits of planning, arguments for and against planning. Economics and social planning as bases of physical planning. Planning process and levels of planning in India.

MODULE – IV

Basics to Physical Planning- Scope and nature of planning, multidisciplinary approach, Planning distinguished from design and management, definitions, goals and approaches to physical planning at different levels.

Contemporary Concepts in Planning- Satellite towns, economic corridors, Special Economic Zones (SEZ), ring towns, National Capital Region (NCR), capital city region, investment regions, transit oriented development.

MODULE – V

Types of plans: Definition of development plan. Introduction to types of development plans: master plan, city development plan, structure plan, district plan, action area plan, subject plan, comprehensive planning, zonal plans etc. Hierarchy of plans: regional plan, sub-regional plan, sector plans and spatial plans, town planning schemes.

Impact of Technology on Planning; smart cities, compact cities, subaltern settlements, global cities, network cities, Implications in physical planning

MODULE – VI CO5

Growth versus Development- Meaning and concept of development, development versus growth, indicators of development, overview of development process. Physical aspects, Zoning, land use planning and infrastructure services; Environmental concerns, sustainability; Socio–cultural and economical perspective; Politics and planning; Need for legislations in planning- Municipal Acts, development controls and regulations, etc.; Aesthetics in planning, Urban Design & Conservation; management of human settlements and built environment, public participation, failures and success in physical planning.

Text books/ Reference Books:

1. Clara Greed: Introducing Planning
2. Shamsher Singh: Urban Planning and Development Issues and Imperatives
3. Rangwala: Town Planning
4. Reading material of ITPI on Socio Economic basis for planning
5. Stanley D. Brown: Cities of the World.

SEMESTER	Course Code	Course Title	L	s	P/O	C	Int. Marks	Ext. Marks	Total Marks
I	PL21B1C2	MATERIALS FOR SETTLEMENT PLANNING	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	General Idea / Introduction to various elements of building from foundation to roof and standards.	1, 3	1, 2
CO2	General idea about basic building materials such as sand, cement, bricks, stone, wood, concrete, steel etc.	1, 4	1, 2
CO3	General idea about basic building materials such as bricks, concrete, mortars etc.	1, 4	1, 2
CO4	General idea about admixtures and basic infrastructure materials	1, 4	1, 2
CO5	Introduction to "Construction" as a subject, its relevance to architectural design, basic principles w.r.t structural stability Study of Construction & the logic of stability as its basis, forces, steel & RCC structures.	1, 4, 8	1, 2, 3

MODULE – I

List the materials used in buildings by type of building, part of building, building process and/ or in the building industry with respective physical, chemical, etc. properties effecting its supply (size, shape, thickness etc.), transportation, handling, stacking and storing, etc. Process of selecting / specifying materials. Knowledge ofthe relevant codes of the Bureau of Indian Standards.

Introduction to building elements, materials and components: Introduction to building elements such as foundations, walls, roofs, floors etc. Introduction to materials of construction like brick, timber, stone, R.C.C., steel etc. Introduction to structural systems of buildings, such as load bearing and framed. Soil structure and interaction with buildings.

MODULE – II

Sand: Sources, classification, functions, properties, tests for silt and organic contents, size of sand and grading.

Cement: Raw materials, functions of cement ingredients, Flow diagram of manufacturing process of cements, chemical composition of cement, IS specifications and tests on Portland cement, different types of cements and their uses.

Steel & aluminum: Types of steel-mild steel, high carbon steel, high strength steel- properties and uses, commercial forms of steel and their uses.

Classification of stones: lime, granite, laterite, quartzite, marble and slates -properties and uses; stone units - header, rubble, quoins, black stones, stone metal, flag stones, paving sets. Preservation of stonework, quarrying of building stones, quarry dressing, tools used.

Timber & wood based products: Classification of timber trees, cross section of exogenous tree, hard wood & soft wood, seasoning of timber, important types of timber and their uses, ply wood and its uses.

MODULE – III

Clay bricks: constituents, harmful constituents, selection of clay, requirements and tests. Fire clay bricks - varieties; sand lime bricks;

Paving bricks: Terra-cotta - its varieties: ordinary, glazed, porous, polished and fine - uses and properties. Building Tiles: Roofing Tiles, flooring and wall tiles.

Mortars: Types, proportioning, mixing and grinding, mortar mills. Surkhi mortar, cement mortar, methods of preparing, handling and uses of mortars, light weight mortars i.e. cinder, sawdust and fibrous plasters, gypsum plaster, composition and uses, plaster of Paris. Preparation of cement mortar.

Concrete: Properties of concrete in plastic and hardened stages, factors affecting strength of concrete, types of concrete and their specific use. Proportion of mortars and concrete for different types of works.

MODULE – IV

Chemical and Mineral Admixtures: Accelerators – Retarders- Plasticizers- Super plasticizers- Water proofers - Mineral Admixtures like Fly Ash, Silica Fume, Ground Granulated Blast Furnace Slag and Metakaoline -Their effects on concrete properties.

Materials used in Basic Infrastructure- Comprehensive study of materials used in provision of basic infrastructure namely-Roads (Asphalt, Concrete etc.), Electricity (types of cables, elevated and underground, transformers, poles, earthling techniques etc.), Communication cable, Water Supply (MS pipes, GI pipes, UPVC, PVC etc.) and Sewerage (clay/ mud pipes, MS molded pipes, man-holes, man-hole covers etc.), Drainage and Storm water drains.

MODULE – V

Forces on buildings: Forces of compression and tension, concept of equilibrium forces and conditions of equilibrium, concept of elasticity and plasticity, Hooke's law, stress – strain relationship of tension and compression. Shear force and bending moment.

RCC structures: Behavior and design principles of RCC columns, beams and slabs. Construction system such as reinforced concrete, pre-stressed concrete and prefab system and modular coordination. Various structural systems for high rise buildings. Introduction to relevant codes.

Steel structures: Use of steel in buildings, structural system in steel, high rise and long span structures. Introduction to relevant codes.

MODULE – VI CO5

Materials used in building construction- Emerging technologies such as eco-material and their advantages. Study of fire safety building materials. Understanding of the cost of the materials. Study of materials used in street infrastructure such as kerbs, street lighting, landscape, medians, traffic islands, street furniture, and distribution poles etc.

Service lines and networks: Road layouts, sewer and storm water drainage system, water supply lines, service duct under the road. Electrical and telecom networks. Overview of materials used for site layouts and site networks.

Text books/ Reference Books:

1. Rowland J. Mainstone: Development of Structural Form

2. Rangwala: Engineering Materials

3. S. P. Bindra, S. P. Arora: Building Construction

4. B.C. Punmia: Strength of Materials vol -1

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
I	PL21B1C3	ELEMENTS OF GEOLOGY & SETTLEMENT GEOGRAPHY	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand types of land forms in India wrt land use planning	1, 2	1, 2
CO2	To study grown water patterns, water supply and thematic maps for spatial Analysis	1, 3	1, 2
CO3	To understand political systems, states, territory, and borders. Understand the basic elements of culture. Understand the types and levels of economic activities. Understand urban structure and development.	4, 7	1, 2, 3
CO4	To understand the importance of national and international concern for protection of environment from various pollutants	7, 8	1, 5
CO5	To understand urban geography, physical factors, site structures and difference between rural and urban settlements.	7, 8, 12	2, 3, 4
CO6	To understand the concept of settlement as a system	1, 5	2, 4

MODULE – I

Introduction- Types of geological structure, landforms, types of regions, concepts of spatial organization and region (in India), and geological structures suitable for buildings with relevance to selection of site and foundations. Composition of the earth and its exterior (hydrosphere, atmosphere and biosphere); Concept of land form, climate and weather; Concept of plate tectonics and continental drift ; Tectonic behaviour and seismic belts (seismic zoning in India)

Study of Land Forms and Indian Stratigraphy- General considerations and overview of preliminary geological data particularly related to Indian Stratigraphy, basic understanding of landforms- erosional, depositional, fluvial, glacial, delta and marine with relevance to land use planning.

MODULE – II

Ground Water- Concept and role in town planning for different types of terrain, vertical distribution of groundwater in India, water table and isometric surface, surface water reservoirs and springs, artificial recharge and ground water mound hydrographs, geological structure and underground passage for water supply.

Thematic Mapping- Types of thematic maps, interpretation of SOI topographic sheets, conventional signs, Indian physiographic maps, Andhra Pradesh physiographic maps, district maps etc.

MODULE – III

Introduction to Settlement Geography- Nature and scope of settlement geography, origin, setting evolution and structure of human settlements, man, environment and society; social economic and political consequences of geographical conditions; physical features and its effect on urban and rural communities; Classification of Settlements: Definition of Settlement, Settlement Morphology; Census classification, urban, rural census size classes, ranking of towns; Settlements in a regional context.

MODULE – IV

Theories of Settlement Systems- Primate city settlement system, rank size rule relationship; central place settlement systems, fundamental concepts, concepts of hierarchy, concept of complimentary area, range of goods; dynamics of central places.

Rural Settlements- Types, patterns, morphology, house types, comparative study of origin and growth of settlements in ancient and modern time's rural housing problems and policies.

MODULE – V

Urban Settlements- City structure, Theories of urban structure concentric zone theory, sector theory, multiple nuclei theory, gradient analysis, form of the pre industrial city, dual structure of the colonial city, modern city forms, new towns and cities, environmental impact of planned and unplanned growth, urbanization, industrialization and urban development; push and pull factors; migration trends and impacts on urban and rural development. Rural urban fringes; its structure, stages of growth, its role in urban growth; Area of Influence, Shadow Regions, Trickle Down Effect; Intra-Urban and Inter-Urban Inequalities.

MODULE – VI

Settlements as a System (Settlement System) - Rural and urban continuum, city region relationships; growth pole theory, settlement systems in a developing economy, structure of city regions, area of influences, dominance.

Geological Data and Their Applications: Types of preliminary geological data related to Indian stratigraphic sequences; Use of geological data for human settlement ; Soil bearing capacity for different types of construction

Text books/ Reference Books:

1. Das Gupta: Physical Geography
2. Harold Carten: Urban Geography
3. Truman &Hartshone: Interpreting Cities – An Urban Geography
4. R Y Singh: Geography of settlement
5. Geology: A Complete Introduction, David Rothery, Teach Yourself Kindle edition, 2015
6. Introduction of Physical Geology, A.K. Datta, Kalyani Publishers, 2010
7. Earth: An Introduction to Physical Geology, Edward J.Tarbuck and Others, Pearson Education India, 2016

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
I	PL21B1C4	STRUCTRURAL SYSTEMS FOR SETTLEMENTS	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To introduce built elements and methods in settlements.	1, 4	1, 2, 3
CO2	To impart knowledge about properties and applications of building materials in construction.	1, 4	1, 2
CO3	To make the student familiar with fundamentals of structure & building Types	2, 3	3, 4
CO4	To introduce the concept of equilibrium	2, 3, 4	4, 5
CO5	To impart the principles of elastic structural analysis and behavior of structures i.e forces, bending moments, and moment of inertia.	3, 4, 5	3, 4, 5

MODULE – I

Introduction to built elements- Study of built elements in settlements with respect to materials used, basic construction methods and general specifications. General types & classifications of buildings; overview of different functional, structural and architectural elements.

Understanding of the 3-dimensional aspects of built and un-built; Interactions of built and unbuilt from micro to macro scale; Internal space distribution and components of buildings; Building and premise level exterior elements –site and surroundings; Public spaces and road networks as external elements of buildings.

MODULE – II

Properties of Materials- Structural properties of basic materials like masonry, timber, concrete and steel, bricks, stone, timber, steel, plastics, composites, sand and aggregates, cement, types of paints and varnishes, claddings, finishes; uses, advantages and disadvantages.

Applications of Materials in the construction- Infrastructure - roads, kerbs, paving, medians/ traffic islands, drainage channels, pipes, culverts, bridges, street furniture, lampposts, distribution poles.

MODULE – III

Buildings - structural and functional typologies such as high-rise, large span, cantilevers, basements and cellars, ramps and elevators.

Fundamentals of Structures- Introduction to basic structural systems, elements of structure, their functions & behavior, beams, slabs, columns, walls, foundations, bearing wall systems, trusses, rigid frames, linear and curved elements; simply supported, cantilever and overhanging beams for various loads; effect of simple geometric forms on the overall structural behavior.

MODULE – IV

Introduction – Equilibrium equations – All systems, Problems on Coplanar Concurrent force system, Coplanar Parallel force system, Coplanar General force system – Point of action, Method of joints, Method of sections, Method of members, Friction – Coulombs laws of dry friction – Limiting friction, Problems on Wedge friction, Belt Friction-problems.

MODULE – V

Introduction to structural systems of buildings, such as load bearing and framed. Soil structure and interaction with buildings.

Fundamentals of Forces- Basic fundamentals in force systems: Primary and secondary forces acting on structures dead loads, live load, wind, seismic forces, distribution of loads through the elements of the system. Forces of compression and tension, concept of equilibrium forces and conditions of equilibrium, concept of elasticity and plasticity, Hooke's law, stress – strain relationship of tension and compression. Shear force and bending moment.

MODULE – VI CO5

Shear Force and Bending Moment: Types of supports - Types of determinate beams - Simply supported, Cantilever, Overhanging and compound beams with articulations -Shear Force and Bending Moment diagrams - Principles of Superposition relation between bending moment and shear force, BM and SF diagrams.

Moment of inertia and section modulus for various structural shapes. Theory of simple bending, Columns and struts, failure of columns, Arches

Text books/ Reference Books:

1. Rowland J. Mainstone: Development of Structural Form
2. Rangwala: Engineering Materials
3. S. P. Bindra, S. P. Arora: Building Construction
4. B.C. Punmia: Strength of Materials vol – 1

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
I	PL21B1S1	GRAPHICS & PRESENTATION TECHNIQUES FOR PLANNING	0	10	0	10	100	100	200

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To know about the drawing and its equipment's.	1, 2	1, 2
CO2	To study graphic forms of all elements of design.	1, 3	1, 2
CO3	To Study of scales & their use in practice & construction applications to enlarge or to reduce the objects in drawings and geometry.	1, 2	1, 2
CO4	To Representation of 3D objects in 2D by graphical, technical aspects of solid geometry.	1, 4	2, 3
CO5	To understand study of geometrical form, perspectives & projections.	4, 5	2, 3, 4
CO6	To Demonstrating techniques of making models of building materials like building blocks, mount board, sandwich board, chucky mount board, etc.	3, 5	4, 6

MODULE – I

Introduction- Introduction to drawing equipment's & mediums - drawing boards, types of pencils, set squares, T square, pro circles, types of brushes, water colors, crayons; paper sizes, types etc.,

Importance of graphics and visual presentation; Introduction to drawing equipment's and mediums.

MODULE – II

Elements of Drawing- Simple exercises in drafting, points, types of lines, line thickness and intensities, dimensioning of lines, polygons, texture, colour and tone in materials.

Fundamentals of drawing: Use of points, lines, polygons; Horizontal, vertical, diagonal, curved lines; Line thicknesses and intensities; Texture, colour and tone in materials; Dimensioning, lettering

MODULE – III

Concepts of Scales & Proportions- Graphic and numerical scales, and planes, freehand lettering, lettering for titles and annotations, enlargement and reduction of drawings, anthropometrics and the scale of man to function.

Concepts of Geometry- Geometric shapes and forms- Introduction to Geometric forms- 2D and 3D. Transformations of 2D to 3D

MODULE – IV

Measured Drawings- Measuring and drawing to scale different objects, rooms, building foot print, site plan, open spaces, roads etc. (Plans, Elevations and Sections)

Freehand Drawing & Rendering Techniques- Graphical representations of trees, hedges, foliage, vehicles, human figures etc. in pen and ink, observation recordings through different mediums.

MODULE – V

Geometric Projections: Orthographic, isometric, axonometric, oblique and perspective projections of one, two and three dimensional objects and geometric built forms; Concept of positive and negative spaces; Principles of planar geometry; Sections of solids - simple and complex solids

Orthographic projections and views- Orthographic projections of point, lines, planes and solids, section of solids, study of isometric, axonometric and oblique views.

MODULE – VI

Model Making- Exercises in model making with different materials, preparation of block models, making building blocks & forms using different materials.

Architectural Design and Drawings

Appreciation of natural forms; Representation of natural elements in graphic form – concept of abstraction; Architectural building drawings - plans, elevations, and sections; Site plan indicating building footprint, open spaces, roads and other related objects; Measured drawings for simple buildings

Text books/ Reference Books:

1. Robert Gill: Rendering with Pen & Ink
2. Kevin Forseth: Graphics for Architecture
3. Frank Ching: Architectural Graphics
4. Bhatt: Engineering Drawing
5. Graphic Design for Architects : A Manual for Visual Communication, Karen Lewis, Routledge, 2015
6. Architectural Graphics, C. Leslie Martin, Macmillan, 1970
7. Architectural Graphic Standards: Student Edition, Charles George Ramsey and Harold Reeve, John Wiley & Sons, 2008
8. Drawing for Graphics Design: Understanding Conceptual Principles, Timothy Samara, Rockport Publishers, 2012
9. Architectural Graphics, Francis D. K. Ching, Wiley, 2015
10. Basic Perspective Drawing: A Visual Approach

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
I	PL21B1P1	COMPUTER APPLICATIONS	0	0	4	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To develop skills in non-graphic applications of computer for presentation skills in planning like MS Word, Spreadsheets, power point presentations and data base.	1, 2	1, 2, 3
CO2	To gain the knowledge on office management skills such as exploring Microsoft access and internet concepts.	3, 4	1, 2
CO3	To Develop designs through 3D visualization & preparing presentation drawings in Photo editing and Desktop publishing soft wares. (Like coral draw, Photoshop, etc.)	3, 4, 11	3, 4
CO4	To understand Basic programming languages. (C language)	5, 6, 10	2, 3
CO5	To understand Database management systems.	5, 6, 10	2, 3, 6

MODULE – I CO1

Introduction- Introduction and history of computer, software & hardware concepts - bits, bytes - types of languages – Operating systems (windows, DOS, Linux).

Introduction to MS Word and Spread sheets- Introduction to Word Processing Package (like MS office), toolbar, creating a new document, formatting text, inserting tables, pictures, page numbers and date/time, Preparing reports- report formats; spelling and grammar checking, taking print outs, exporting word to other formats. Introduction to spread sheets (like MS Excel), Data entry, creating formulae, order of operations, borders and shading, inserting chart, analysis, import and export of graphics, taking print outs, exporting MS excel to other formats

MODULE – II CO1

Multi-media Presentations- Introduction to multi-media presentation (like MS Power Point), creating a presentation, opening an existing presentation, creating a blank presentation, different Power Point views, slide manipulation, slide animation, slide transitions, view slide show, navigating while in slideshow, hyper linking to various other media/ application outputs, scanning of different media in different formats, setting of options, resolution settings, management of file size, integrating partial scans of large documents, pack up a presentation for use on another computer, taking print outs.

MODULE – III CO2

Exploring Microsoft Access- Introduction, creating new and opening existing databases, creating a database using a wizard, creating a database without using a wizard, tables - what they are and how they work, create a table from scratch in design view, primary keys, switching views, entering data, manipulating data, advanced table feature examples. Relationships - how to link multiple tables together, forms - what they are and how they work, creating a form using a wizard, reports - what they are & how they work,

Creating report & mail merge labels using a wizard.

Internet concepts - Introduction to Internet, Hyper Text Mark-up Language, introduction to basic features and uses of Java, VB.

MODULE – IV CO3

Graphical Concepts- Photo editing and Desktop publishing (application) software Introduction, software & system requirements, preferences, workspace, graphics terminology, image depth, resolution and image size, up sampling and down sampling, image sources, straightening an image, cropping an image, basic image correction, printing photo edited documents, selections, choosing foreground and background colors, filling with color, options & preferences revisited, file browser, stepping back in time, use ram efficiently, sharpening images, working with layers, painting in photo editing software, colour theory, image modes, channels, more advanced adjustment commands, file format categories. Import and export of photo edited files, objects in photo editing, fills, outlines, basic toolbox of photo editing software (like Coral Draw), colour management tools, starting your page right, introduction to Flash multimedia software.

MODULE – V CO4

Programming languages- C language, flow charts; Introduction, What is C? Structure of C program, Variables, I/O statements, branching and Looping, Arrays, Strings, Functions, Pointers, Structures, files.

MODULE – VI CO5

Database management systems- SQL (structured query language), PL/SQL; Introduction, creating and inserting data into tables, updating values, modifying tables, working with quires Basic Structure of PL/SQL, Variables and Types, Simple PL/SQL Programs.

Text books/ Reference Books:

1. Microsoft Office 2000- Leon Hard Woody, New Delhi, Prentice hall of India.
2. Microsoft Office for Windows –Sagman India Addison Wesley, 1999.
3. Adobe Photoshop CS Classroom in a Book (Classroom in a Book) by Adobe
4. Creative Team (Paperback - December 1, 2003).
5. Fundamental Photoshop: A Complete Introduction by Adele Droblas-Greenberg.
6. SQL/PL/SQL – The Programming Language of Oracle By Ivanbayross, Bpb Publications
7. LET US C –Yashwath Kanitkar
8. Programming In ANSIC –Balaguru swamy
9. The C Programming Language –Karningh and others
10. HTML Black Book

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
I	MC21B101	UHV-1 Student Induction Program (mandatory AICTE)	2	0	0	o	-	-	-

COs	Course Outcomes	POs	BTLs
	The Student Induction Program (SIP) The 3-week Student Induction Program (SIP) is to prepare newly admitted undergraduate students for the new stage in their life by facilitating a smooth transition from their home and school environment into the college and university environment through various discussions and activities. The SIP has been formulated with specific goals to help students to:		
CO1	Become familiar with the ethos and culture of the institution (based on institutional culture and practices)	NA	NA
CO2	Set a healthy daily routine, create bonding in batch as well as between faculty members and students	NA	NA
CO3	Get an exposure to a holistic vision of life, develop awareness, sensitivity and understanding of the Self---family---Society---Nation---International---Entire Nature	NA	NA
CO4	Facilitate them in creating new bonds with peers and seniors who accompany them through their college life and beyond	NA	NA
CO5	Overcome weaknesses in some essential professional skills – only for those who need it (e.g. Mathematics, Language proficiency modules)	NA	NA

The various modules or core areas recommended for the 3-week SIP are:

SIP Module 1: Universal Human Values I (UHV I) 22 hours

The purpose is to help develop a holistic perspective about life. A self-reflective methodology of teaching is adopted. It opens the space for the student to explore his/her role (value) in all aspects of living – as an individual, as a member of a family, as a part of the society and as an unit in nature. Through this process of self-exploration, students are able to discover the values intrinsic in them. The session wise topics are given below:

Session No	Topic Title	Aspirations and Issues	Basic Realities (underlying harmony)
1	Welcome and Introductions	Getting to know each other	Self-exploration
2 and 3	Aspirations and Concerns	Individual academic, career… Expectations of family, peers, society, nation…Fixing one's goals	Basic human aspirations Need for a holistic perspective Role of UHV
4 and 5	Self-	Self-confidence, peer pressure, time	Harmony in the human

	Management	management, anger, stress… Personality development, self-improvement…	being
6 and 7	Health	Health issues, healthy diet, healthy lifestyle Hostel life	Harmony of the Self and Body Mental and physical health
8, 9, 10 and 11	Relationships	Home sickness, gratitude towards parents, teachers and others Ragging and interaction Competition and cooperation Peer pressure	Harmony in relationship Feelings of trust, respect… gratitude, glory, love
12	Society	Participation in society	Harmony in the society
13	Natural Environment	Participation in nature	Harmony in nature/existence
14	Sum Up	Review role of education Need for a holistic perspective	Information about UHVII course, mentor and buddy
15	Self-evaluation and Closure	Sharing and feedback	

SIP Module 2: Physical Health and Related Activities

This module is intended to help understand the basic principles to remain healthy and fit and practice them through a healthy routine which includes exercise, games etc.

SIP Module 3: Familiarization of Department/ Branch and Innovation

This module is for introducing and relating the student to the institution/department/branch; how it plays a role in the development of the society, the state, region, nation and the world at large and how students can participate in it.

SIP Module 4: Visit to a Local Area

To relate to the social environment of the educational institution as well as the area in which it is situated through interaction with the people, place, history, politics…

SIP Module 5: Lectures by Eminent People

Listening to the life and times of eminent people from various fields like academics, industry etc. about careers, art, and self-management and so on enriches the student's perspective and provides a holistic learning experience.

SIP Module 6: Proficiency Modules

This module is to help fill the gaps in basic competency required for further inputs to be absorbed. It includes effort to make student proficient in interpersonal communication and expression as well as awareness about linguistic and thereafter NLP.

SIP Module 7: Literature / Literary Activities

Through the exposure of local, national and international literature, this module is aimed at helping the student learn about traditional as well as contemporary values and thought.

SIP Module 8: Creative Practices
This module is to help develop the clarity of humanistic culture and its creative, joyful expression through practice of art forms like dance, drama, music, painting, pottery, sculpture etc.
SIP Module 9: Extra Curricular Activities
This is a category under which things that are not placed in any of the above may be placed. Some clubs and hobby group may be made for each of the above categories, so that students may pursue them even after SIP.

The recommended hours to be allocated are given above. Depending on the available faculty, staff, infrastructure, playgrounds, class timings, hostellers and day scholars etc., the timetable for these activities may be drawn up. Of course, colleges may conduct an inaugural function at the beginning of the SIP; and they may also conduct a celebratory closing ceremony at the end of the SIP. In particular during the lockdown phase, appropriate care may be taken and some or all activities may be planned in distance-learning or on-line mode.

Implementation:
The institution is expected to conduct the 3-week SIP under the guidance of the Director/Principal or Dean Students or a senior faculty member. For this, the institution is expected to make an SIP Cell. The SIP Cell will be responsible for planning, and then implementation of the SIP.
Follow up:
The SIP is only the beginning of the interaction with newly joined students.
An important part of the SIP is to associate one faculty mentor to every small group of about 20 students; and also associate one senior student buddy to an even smaller groups of about 5 students for the guidance required for holistic development of the newly joined student throughout his/her time in the institution/college.
These activities are to be continued in the ongoing academic program along with other cultural activities through the Student Activity Cell (SAC).

SEMESTER – II

SEMESTER	Course Code	Course Title	L	S	P/ O	C	Int. Marks	Ext. Marks	Total Marks
II	PL21B2C1	DEMOGRAPHY & URBANIZATION	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand demographic measurements and their theories	2,3,4,5	2,3,4
CO2	To learn about demographic surveys, schemes and survey types	2,3,4,8	2,4,6
CO3	To understand the concept of urbanization and its issues	2,3,4,8	2, 4,5
CO4	To learn about population movements and theories of migration	2,3,4,8	3, 4
CO5	To know about urbanization , their trends and its factors	2,3,4,8	4, 5
CO6	To know about policies and strategies for directing Urbanization Trends in India	2,3,4,8	3,4

MODULE- I

Introduction to Demography: Definitions need for demographic studies, Demographic Variables, Data Sources, Theories of Demography, Population and Development; Concepts, measures, trends and explanations / determinants, data sources of Nuptiality, Fertility, Mortality (with special reference to infant mortality and maternal mortality), health and morbidity, in India (including differentials within India); biological and social factors. Cause of Death statistics; Life Table.

Theories: Theories of Population Growth – Malthus to modern; limits to population growth; Theory of Demographic Transition; Population and Gender – its relationship with components of population – fertility, mortality, migration; Status of women – social, economic, cultural and health; Women empowerment and its demographic consequences; Population Policies and Programs; Population policies in the context of growth, structure, distribution and quality of life; National and State population policies in India.

MODULE – II

Population Composition and Changes: Spatial and temporal changes in the size, composition & distribution of population – global perspective with special focus on India; Composition of India's population; Demographic Composition; Social Composition; Economic Composition; Cultural Composition Concept of ageing.

Sources of Population Data: World: Census; Registration of vital events; Demographic Surveys; Population Registers. India: Census, Civil Registration System (CRS); Sample Registration Scheme (SRS); National Sample Survey (NSS); Demographic surveys and other sources.

MODULE – III

Population, Development and Environment: Concepts, definitions, relevance and measurement; Inter – relationship between population growth, environment and sustainable development with special reference to India; Implications of population growth on food supply, water, sanitation, housing, employment, health,

Education, etc.; Spatial Distribution of Population; Measures of density and concentration; factors affecting spatial distribution and temporal changes in density and concentration; World / India's pattern of population distribution.

MODULE – IV

Population Movements: Basic concepts and definitions; circulation, commutation, mobility, migration – their environmental impact assessment; determinants and consequences of internal / international migration; urbanization and migration in developed and developing countries; Theories of migration, pull and push factors; Lee's theory of migration; Raven stein's Law of migration; Stouffer's model of intervening opportunities and competing migrants; gravity models; Harris – Todaro Model of Migration; Direct and indirect interrelations of population, natural resources and environment's.

MODULE – V

Urbanization: Urbanization, Urban revolution ,its preconditions; history of urbanization, histories that shaped (post) colonial and transition societies in the Third World; Theorizing Urbanization/Urban Typologies; Concepts and definitions of urban; trends and patterns of urbanization in India; Mughal and British influences of Indian cities; post-independence urbanization; urbanization process as influenced by socio-cultural, political, economic and administrative factors; definition of urban centres, concepts of rural urban continuum and dichotomy; census definition of urban places-town, cities, town groups, urban agglomerations, standard urban area metropolis, megalopolis etc. functional classification of urban centre. Issues in urbanization and urban problems in developing countries with focus on India; Urbanization as a global phenomenon; Urbanization and economic growth.

MODULE – VI

Policies and Strategies for directing Urbanization Trends in India- National Urbanization policy; basic issues in urbanization policy; role of national and state level policies; five year plans; salient features of the national commission of urbanization. Programs / schemes such as the IDSMT, Mega-city project, JnNURM, UIDSSMT, Satellite towns / countermagnets of million plus cities, etc.

Text books:

1. Demographic and population problem by RajendraK.Sarma Publisher: Atlantic
2. Hand book of Urbanization in India, Second edition by K.C.Sivarama Krishnan,.
3. Population and sustainable development in India by EhsanulHaq,Sudhirkumar Singh
4. Population of India-2001 by S.N.Dubey.
5. Demography and population studios O.S.Shrivartama

Reference Books:

6. Urban Design: The architecture of towns & cities / SPREIREGEN, PAUL. D.
7. The urban pattern: city planning and design / GALLION, A B
8. Amitabkundu, B.N.SinghOxfor University pren

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
II	PL21B2C2	QUANTITATIVE METHODS	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To have theoretical as well as practical understanding of fundamental concepts statistical data collection in planning.	2,4,6	2,3
CO2	To understand various methods of data collection and variables influencing hypothesis.	2,4,6	3,4
CO3	To represent data using various tools	1,2,4,6	1,2,4
CO4	To analyse own survey data and critically assess data.	1,2,4,6	2,4,5
CO5	To understand methodological principles, core concepts and techniques in quantitative research.	1,2,4,6	1,2,4
CO6	To understand time series analysis and probability distributions	1,2,4,6	2,3,6

MODULE – I

Planning and Data Requirements: Importance & need of planning; Planning problems and Quantitative methods; Need of surveys, Data required for spatial planning, Statistical data and methods, collection of data, record, file and Sources available; formulation of goal and objectives – questionnaire design, design of sample surveys , Survey: Sample Vs census; merits and demerits, types-Sampling frame, Sample selection – sample size calculation;

MODULE – II

Methods of data collection: Direct observation, questionnaire, schedules, Interviews and video conference methods, Document Reviews; Advantages and Disadvantages.

Data Analysis: Raw data, level of measurement, frequency distribution, selecting number of classes, class limits, curves, cumulative frequency distribution, measures of central tendency; arithmetic mean, median, mode, geometric mean and harmonic mean; measures of absolute dispersion, range, quartile deviation, average deviation, standard deviation, skewness and kurtosis.

MODULE – III

Data Presentation Statistical tables: Types of tables, comparisons, methods of presentation, graphic presentation; types of charts; plotting a curve, rules for drawing curves; bar charts, pictography, pie charts, histograms/ use of presentation software.

Index Numbers, Sampling Methods: Indexing– types and use of index numbers, construction of index number simple index and composite index – application of Index numbers planning perspective.

Sampling method: Drawing a sample, probability and non-probability -probability techniques.

MODULE – IV

Data Processing: Univariate analysis & Bivariate analysis –correlation, Regression methods (Linear and non-linear regression, lines of regression, coefficient of regression), Degree of correlation, correlation coefficient, methods of concurrent deviation, coefficient of rank correlation, partial correlation analysis and multiple correlation, chi-square test. Methods of Graphical representation – single and multi-variables.

MODULE – V

Hypothesis Testing: Important aspects of Research, Types of estimation; point, interval, testing of hypothesis, statistical hypothesis, simple and composite tests of significance, formulation of hypothesis-Null hypothesis, Alternate hypothesis, Type I and Type II errors, level of significance, degrees of freedom, Critical region one and two-sample Z-Tests when population S.D is known and not known, one and two-sample t-tests, paired t-test.

MODULE – VI

Time series Analysis- Components of time series analysis, Variation in time series, trend analysis, cyclical variation, seasonal variation, irregular variation, time series analysis forecasting; Method of semi-averages, fitting of 1st and 2nddegree polynomials for trend fitting, seasonal variation, Method of moving averages for finding seasonal indices- Applications in planning.

Probability Distributions- Probability- Introduction, Basic Definitions Events and types – dependent independent, mutually exclusive and not exclusive. Addition and multiple rules, conditional probability, Bayes rule etc. Application of probability in Planning. Statistical Distributions–random variable -discrete

Text books

1. SP Gupta: Statistical Methods
2. Ram Ahuja: Research Methods
3. Philip I. Good: A practical Guide to Data Analysis
4. Nageswara Rao G: Research Methodology and Quantitative Methods, B.S.Publications, Hyderabad.

Reference Books:

5. Quantitative Methods in Management - R Selvaraj
6. Quantitative Techniques in Business Management and Finance - Umeshkumar Dubey,D P Kothari,G K Awari
7. Quantitative Methods - Paolo Brandimarte

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
II	PL21B2C3	ESTIMATION & SPECIFICATIONS	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	Compare different types of estimate, units of measurements & payments for different item of works in construction and illustrate a relationship to Bill of Quantities and Scheduled rates	1,4,11	1,2,5
CO2	Explain the specifications of different Items of works.	1,2,4,11,12	5,6
CO3	Estimate the quantities and evaluate the abstract cost for different types of buildings by Centre line method and costings	1,2,4,11,12	5,6
CO4	Estimate and costing for the projects		
CO5	Estimate the quantities and evaluate the abstract cost for different types of buildings by Long wall-short wall method	1,2,4,11,12	5,6

MODULE – I

Introduction to Specification: Why the knowledge of quantity surveying and specifications is necessary for Planners? Significance and methods of writing specifications, types & classifications of specifications, sources of specifications, quality and class of work, materials to be used in the various parts of work, quality of the material, their proportions, method of preparation, workmanship and description of the execution of work are required.

MODULE – II

Introduction to Estimation: Types and methods of cost estimation rates for different components of planning projects; ISI units of measurement and modes of payment for different items of works – prevalent rates types of estimates.

Cost estimation and determination of rates for different types of housing; Cost estimation and determination of rates of works involved in the infrastructure services (roads, water supply, sewer systems etc.); Costing procedure for different land use categories, development works, interest on investment, and phasing; Preparation of detailed Development Costs of a Planning Schemes for an approximate population of 5,000 as per Norms and standards

MODULE – III

Specifications writing- Significance and methods of writing specifications; issues related to housing, infrastructure, pumping et; general specifications for housing, city level infrastructure like water supply network, pumping stations, sewerage network, power supply, road network, street lighting etc.

Specifications for Infrastructure & External Work- Detailed specifications for infrastructure works like W. S. system, sewage drains, roads, landscaping, railings, paving, pathways, and boundary walls, fencing. General specifications for common building materials and building trades, earthwork, structure (framing),

flooring, stonework, plasters, waterproofing of basements and terraces, roofing, doors & windows, elevators
MODULE – IV CO4
Estimation- Purpose of estimation, methods of estimation, types of estimates-approximate estimates, definite estimate; levels of detailed estimate; Cost estimation and determination of rates for different types of housing; Cost estimation and determination of rates of works involved in the infrastructure services (roads, water supply, sewer systems etc.);
MODULE – V CO4
Costing- Costing procedure for different land use categories, development works, interest on investment, and phasing; preparation of detailed Development Costs of a Planning Schemes for an approximate population of 5000 as per Norms and standards.
MODULE – VI CO5
Introduction to Valuation- Valuation, value and purpose of valuation; Definition and importance of valuation of land and buildings; Factors affecting the property and land value at a city and locality level; fiscal and administrative measures of land value; Betterment charges, **Valuation-** Introduction to methods of calculating depreciation value of buildings, capitalized value of buildings, appreciation and depreciation. Valuation, value and purpose of valuation; Definition and importance of valuation land and buildings; Factors affecting property and land value at a city and clarity level; Legal, fiscal and administrative measures of land value; Betterment; Scrap value, salvage value, outgoings; Capitalized value of buildings; appreciation, methods of calculating depreciation

Text Books:

1. Rangwala: Valuation of Real Properties (Charota Publications)
2. Kohli, D.D and Kohli, R.C.,"A Text Book of Estimating and Costing (Civil)", S. Chand & Company Ltd.2004.
3. Vazirani/Chandala: Estimation & Costing
4. B.N. Datta: Estimation & Costing
5. Gurucharan Singh: Building Planning, Designing and Scheduling
6. Dutta, B.N., "Estimating and Costing in Civil Engineering" UBS Publishers & Distributors Pvt. Ltd., 2003.

References:

7. PWD Data Book.
8. Arbitration and Conciliation Act,1996
9. Standard Bid Evaluation Form, Procurement of Goods or Works, the World Bank, April 1996.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
II	PL21B2C4	ECONOMICS & SOCIOLOGY	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	Understand the way economic processes and theory of demand and supply	1,2,3,4	1,2
CO2	To understand urban and regional areas economy	5,6,7	1,2,3
CO3	To examine the character and consequences of social life in the inner-city neighborhood settings	1,4,8	1,2,3,6
CO4	To explore the role of the built environment in shaping social interactions, and understand how space is related to mechanisms of both formal and informal social control.	3,4,5,6	1,3,5,6
CO5	To understand how the city works and how the decisions about urban space are made.	1,7,11	2,,4,5,6
CO6	To understand public economics	1,7,11	2,4,5,6

MODULE - I

Economics: Definition and scope of economics, the central problems of economics, microeconomics and macroeconomic decisions. Theory of production, factors of production, the scale of production internal-external economics, division of labour. Theory of Demand, Supply and demand, the market mechanism, imperfection of competition and economic role of Government, Theory of income, employment and money, National income (GNP and NNP) fiscal policy and inflation. Indian financial institutions. Problems of economic growth and development, characteristics of underdeveloped economics, balanced growth and industrialization, technological change and innovations long term economic plans, economics of urbanization.

MODULE - II

Introduction to Urban and Regional Economics- Nature of urban areas; the scale of economies; agglomeration economies; Use of economic concepts in urban planning, housing, transport, taxes, land use, location, etc.; use of economic concepts in regional planning; location, disparities in development, input-output techniques, sectoral development etc. Indicators of economic development used by World Bank & UNDP and their interpretations.

Modern Economic Planning in India- Planning Commission, National Five Year Plans, annual budgets, National Finance Commission, National Development Council, State Finance Commission, allocation of resources, State Plans and budgets (particular emphasis on Telangana) etc.; basic structure and interpretations, income groups, the definition of poverty, poverty lines, introduction to poverty alleviation programmes, income distribution, inequalities and regional disparities, national income (GNP and NNP) fiscal policy and inflation, Indian financial institutions- Study of relevant documents

MODULE - III

Land Economics- Economic concept of land; basic principles of land economics relevance for spatial planning, economic rent market mechanism, land use pattern and land values; location economics. Land and real estate market, private ownership and social control of land, Economics and Town Planning decisions, effects of legislation on land development and urban land economics. Land development charges and betterment levy; land use restriction, compensation and requisition, taxation of a capital gain on land versus public ownership's, economic aspects of land policies at various levels of decision making.

MODULE - IV

Urban and Industrial Sociology- Urbanization and urbanism; the relationship between sociology and town planning. Introduction to the sociological concepts of Marx, Talcott Parsons, Weber, Durkheim, Riesman, Jane Jacobs, Gans, Castells, David Harvey, etc. social aspects of urban-rural migration; concepts of industrial society; social aspects of industrialization; social problems of urban community crime delinquency and violence. The Chicago school of sociological thought, sociation.

MODULE - V

Perspectives on Urban Culture: Louis Wirth and the urban way of life, Simmel and metropolitan culture, the culture of modernity, the social construction of urban meaning, urban culture and postmodernity. Culture, language, religion, caste, rural community and its relationship with urban community, the social division of urban and rural poor. Social organization and space in the city urban space and segregation, labour markets and housing markets, suburbanization and gentrification, changing inequalities.

MODULE - VI

URBAN PUBLIC ECONOMICS: Economic and administrative factors Land use and Zoning regulation, Economic principles of Land use zoning – Public facility and Location choice – Pollution, Crime and Externalities – Property tax – Transportation pricing, Rationale for pricing, Alternate methods of road pricing - Congestion and Pricing – Transport Infrastructure Investment – Division of labour and immigration

Text Books:

1. Arthur O' Sullivan, 'Urban Economics', McGraw – Hill/Irwin, New York, 8 th edition, 2012.
2. Briggs, X, Popkin, S. & Goering. J, 'Moving To Opportunity: The Story of an American Experiment to Fight Ghetto Poverty'. Oxford University Press, 2010.
3. Park, Robert E. /Burgess, Ernest W, 'The City' published by University of Chicago, 1970.
4. Gans, Herbert, 'Urbanism and Sub-urbanism as Ways of Life: A Re-evaluation of Definitions.' In People, Plans, and Policies, 1994. 9
5. Jackson, K, Crabgrass Frontier, 'The Suburbanization of the United States.' Oxford University Press, 1985.
6. McCann, Philip, 'Urban and Regional Economics', Oxford University Press, 2001
7. Paul N. Balchin, Gregory H.Bull, Jeffrey L. Kieve, 'Urban Land Economics and Public Policy', Macmillan International Higher Education, 1995.
8. Quigley, John M, 'Urban Economics.' The New Palgrave Dictionary of Economics (2nd edition), 2008.

9. Strange, William C, 'Urban Agglomeration', The New Palgrave Dictionary of Economics (2nd edition), 2008.

Reference Books:

11. . Irwin McGraw Hill: Urban Economics

12. Mill & Hamilton: Urban Economic

13. Evans: Urban Economics

14. B.L. Mathur: Economic Planning & Development Theory & Practice

15. Adams Sydie: Sociological Theory

Note: Both in internal assessment & external Examination weightage of marks shall be 50% for Economics & 50% for Sociology.

External examination paper shall have part A & part B testing the knowledge of students in Economics & Sociology separately giving equal weightage.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
II	PL21B2S1	SETTLEMENTS MAPPING AND VISUAL REPRESENTATION	0	9	0	9	100	100	200

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To know about spatial distribution of settlements in rural and urban area	2,4,8,9	1,2
CO2	To understand various planning techniques, their standards and able to understand mapping protocols	1,4,6,8	2, 4, 6
CO3	To understand concepts of maps at different levels in preparation of maps for different scales.	1,3,4,6,8	3,5
CO4	To gain the knowledge in base map preparation for an area & documentation for the same.	1,3,4,6,8	1, 2, 3
CO5	To able to map of various elements using various tools (GIS & QGIS) through open source data.	1,3,4,6,8	3, 4
CO6	To prepare thematic maps with land use data	1,3,4,6,8	4, 5

MODULE - I

Settlement in Geography: Need for the study of settlement geography; definition of settlement; ranking of towns; site and situation patterns; settlement morphology.

Spatial Distribution of Settlements: Settlement in regional; context; spatial models of location, size and spacing of settlements; Central Place Theory; Characteristic of rural, urban fringe; rural urban continuum; interurban inequalities; Interaction among settlements; Gravity model, classification of settlements.

MODULE - II

Planning standards: Study and implement the planning standards for different land use.

Base mapping protocols: Choice of appropriate scales (graphic and numeric); orientation of maps; title of sheet and lettering; techniques of reducing and enlarging maps, legends items, notations, use of monochrome and colour, colour coding, black and white as presentation techniques by using internationally accepted hatching patterns, Tabulation and graphic presentation of statistical data.

MODULE - III

Types and contents of maps: Topographic, cadastral, land use, administrative maps etc.

Photography & Applications: Scope of photography and media, techniques and principles of photographic compositions, documentations in field studies.

Map analysis: Superimposition of the cadastral map to identify the revenue boundaries; ground verification of region/area for updation and modification; land suitability analysis; layering exercises; techniques and

application.
MODULE - IV
Techniques of base map preparation: Tracing the topographic sheets manually by identifying the regional/district boundaries, city and municipal ward boundaries, existing settlement boundaries, major water bodies, reserve forests, rocky formations ecologically sensitive areas, major roads, major electric power lines, historical monuments of national importance, and protected defense establishments; using of appropriate legend items, standard patterns, symbols and notations.
MODULE – V
Visual Hierarchy and Layout: Design process, vertical and horizontal organization of visual field, map image and mapped geography, other considerations for the map construction process, maps and human vision, contrast, grouping and gestalt, planning a map's hierarchy, matching intellectual and construction of a visual hierarchy, categories of map layouts, importance of structure in layout, balance and negative space, unity of map Construction. **Image of the City**: Typology of urban perception, impact of socio economic status of people on the image of a city; components forming the image of a city; land marks, edges etc.
MODULE - VI
Urban Land Use Studies: Classification of land use in urban area; analysis of location and structure and models of growth patterns of CBD, industrial areas and residential areas; intra urban inequalities. **Regions:** Types of regions, delineation of regions, city region, the structure of city region, area of influence and dominance, shadow regions Trickle-down effect, rural urban fringe, its structure and growth. **Preparation of thematic maps:** Bivariate and multivariate mapping and their relationships, tri-variate choropleth maps, Appreciation studies of land use classification of residential, commercial, institutional, transportation, recreation areas small urban and/ or rural settlements.

Text books:

1. Lanse Bowen Billings: Perspective- Space and Design
2. Bhatt: Engineering Drawing
3. Frank Ching: Architectural Graphics

Reference Books:

4. Dent, B.D; Torguson, J.S:& Holder, T.W. (original edition 1985: latest edition 2009). Cartography:
5. Thematic Map Design McGraw Hill Higher Education.
6. Brewer, C.A. (original edition 2005, latest edition 2016).Designing Better Maps: A guide for GIS Users. Esri Press.
7. Krygier, J. & Wood.D. (Original edition 2005, latest edition 2016). Making Maps: A Visual Guide to Map Design for GIS. The Guilford Press.

8. MacEachren, A.M. (1995). How Maps Work: Representation, Visualization and Design. The Guildford Press.

9. Robinson, A.H. (1952).The look of maps, University of Wisconsin Press.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Mark	Ext. Marks	Total Marks
II	PL21B2P1	SURVEYING	2	0	2	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the basic principles of surveying and various levelling methods in surveying.	1,5,6	1,2,3,5
CO2	To learn about the various methods for computing the areas and understand the concepts related to compass surveying.	1,5,6,9	3,4,5,6
CO3	To know the importance of traversing and bearings while plotting an area	1,5,6,9	4,5,6
CO4	To use plane table surveying and able to know about simple and compound curves importance	1,5,6,9	4,5,6
CO5	To identify contours and compute areas using various methods	1,5,6,9	3,4,5,6
CO6	To understand the application of modern surveying methods like EDM, GPS surveying, Photogrammetry etc.	1,5,6,9	3,4,5,6

MODULE - I

Basic Principles of Surveying - Definitions, classifications, scales and symbols, use, objectives and basic principles of surveying; Classifications of measurements and units, concepts of scales, maps and plan and use of conventional symbols; Stages in surveying works - field works, office works, care and adjustment of the instruments; Errors in surveying - sources and kinds.

Levelling - Definition, principle, methods and application of levelling; Instruments used and the principles of their work; Concepts of level surface, level line, horizontal plane, horizontal line, vertical line, datum, benchmarks; Theory of direct levelling, differential levelling and reduction of levels, classification of levelling and errors in levelling.

MODULE - II

Chain Surveying- Definition, application, advantages and disadvantages, principles; Instruments used, steps in chain survey; Definition of a framework of survey, survey lines, survey stations, baseline, tie line, check line; Ranging and chaining a survey line including slope ground, off-sets - use and types; Errors and obstacles in chaining; tape corrections, Plotting chain survey to prepare a plan with practical examples

MODULE - III

Compass Surveying - Definition of compass surveying, traversing, types of traversing, applications, advantages and disadvantages, principles and instruments used in compass surveying; Concept of bearings, meridian and angles, designation of bearing, fore bearing and back bearing local attraction; Plotting of compass survey data to prepare a plan of a small area

MODULE - IV

Plain Tables Surveying- Definition, application, advantages and disadvantages of plane table survey; instruments used, working operation, methods of plane table survey (traversing Method – Radiation Method –Intersection Method) – Resection Method (two-point problem), Three-point problem; Preparation of map of a small area with plane table survey.

Curves: Types of curves and their necessity, elements of simple, compound curves.

MODULE - V

Contouring: Definition and application of contouring; Characteristics and interpretation of contour lines; Methods of locating contours

Computation of Areas - General methods of determining area; Instrument used and their principles for computing area; Determination of area from the plotted map with different methods from field notes and from the plan (Simpson's rule, trapezoidal rule, average ordinate and comparing them); Use of Digital Planimeter.

MODULE - VI

Photogrammetry: Photogrammetry as an Alternative Tool for Surveying; Introduction to Aerial Remote Sensing and Aerial Photographs, Classification; Principles of Stereoscopic Vision; Basic instruments - Stereopair, Pocket and Mirror Stereoscopes, Parallax Bars; Principles of Photogrammetry, Measurement of Heights and Depths.

Digital Surveying: Introduction to use of digital surveying – Types of Electronic Distance Measurements, Modulation instruments such as diplomat – total station, errors in a total station survey, theodolite – temporary adjustments – traversing – Measurement of horizontal and vertical angle, Global Positioning Systems- Segments, GPS measurements, errors and biases, Surveying with GPS, Coordinate transformation, accuracy considerations

Text Books:

1. Dr. K.R. Arora, Surveying Vol-1 & Vol-2, Thirteenth Edition, Standard Book House, 2015
2. Dr. B.C. Punmia, Er. Ashok K. Jain and Dr.Arun K. Jain., Surveying Vol-1 & Vol-2, Sixteenth Edition, Laxmi Publications (P) Ltd., 2005.

Reference Books:

3. R. Subramanian, Surveying and levelling, Second Edition, Oxford University press, 2012.
4. S. K. Duggal., Surveying Vol-1, Fourth edition, McGraw Hill., 2013.
5. S. S. Bhavikatti, Surveying and Levelling Vol-1, I. K. 69 International Publishing House Pvt. Ltd., 2008.

SEMESTER	Course Code	Course Title	L	S	P/ O	C	Int. Marks	Ext. Marks	Total Marks
II	PL21B2K1	COMMUNICATION SKILLS FOR PLANNING	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the importance of speaking and listening skills.	9,10	1,3
CO2	To understand the importance of effective written skills and also able to know various styles	6,9,10	2,4
CO3	To write various technical letters and reports	9,10	5,6
CO4	To address a person or a firm	1,6,9,10	4,5
CO5	To know the importance of literature in research	9,10	3,4,5
CO6	To write technical papers and reports using various tools	9,10	4,5,6

MODULE - I

Listening: Process of listening, types of listening, outlines
Reading: Types of reading, skimming, SQ3R method.

MODULE - II

Effective Written Skills : Types & classification of reports, the difference between technical, scientific, legal and other types of communication; Format and elements of reports, structuring of preamble, contents, chaptalization bibliography, footnotes, appendices and references.

MODULE - III

Technical Writing:
(a) Business Letters, Format of Business letters and Business letter writing
(b) E-mail writing
(c) Reports, Types of Reports and Format of Formal Reports
(d) Press Report Writing

MODULE - IV

Formal Letters & Specifications ; Business and official letters, styles and format, requests for specifications and other types of business enquirer, conduct of meetings responsibilities of the chairman and secretaries; agendas

MODULE - V

Literature Survey: Use of libraries, knowledge of indexing and available reference material.

MODULE - VI

Use of Multimedia in Communication: Computer adaptive presentations slide shows, using the overhead projector, etc. Style and format for the presentation of the seminar papers, technical reports, and dissertations.

Text Books:

1. Krishna Mohan & Meera Banerji: Developing Communication Skills Macmillan India
2. C S Rayudu: Principles of Public Relations, Himalaya Publishing House
3. K. Ashwathappa: Organizational Behavior, Himalaya Publishing House 4. Daniel Colman: Emotional Intelligence.
4. Brooks, Margret. Skills for Success. Listening and Speaking. Level 4 Oxford University Press, Oxford: 2011.
5. Richards, C. Jack. & David Bholke. Speak Now Level 3. Oxford University Press, Oxford: 2010.
6. Roach Peter. English Phonetics and Phonology.
7. A.S. Hornby's. Oxford Advanced Learners Dictionary of Current English, 7th Edition
8. Prasad, P. The Functional Aspects of Communication Skills, Delhi.
9. Sen, Leena. Communication Skills, Prentice Hall of India, New Delhi.

Reference Books:

10. Bhatnagar, Nitin and Mamta Bhatnagar. Communicative English for Engineers and Professionals. Pearson: New Delhi, 2010.
11. Hughes, Glyn and Josephine Moate. Practical English Classroom. Oxford University Press: Oxford, 2014.
12. Vargo, Mari. Speak Now Level 4. Oxford University Press: Oxford, 2013.
13. Richards C. Jack. Person to Person (Starter). Oxford University Press: Oxford, 2006.
14. Ladousse, Gillian Porter. Role Play. Oxford University Press: Oxford, 2014
15. A Guide to English Literature by F. W. Bateson
16. A Bibliographical Guide to Studies in the Literature of the USA by Clarence H. Gohdes
17. The American Language by H. L. Menken
18. A Manual for Writers of Term Papers, Theses and Dissertations by Kate Turabian
    Roget's Interna7tional Thesauri

SEMESTER	Course Code	Course Title	L	T	P/ S	C	Int. Marks	Ext. Marks	Total Marks
II	MC21B201	**Environmental Science**	1	0	0	0	-	-	-

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the importance of environment and natural resources	6, 7	1, 2
CO2	To acquire the knowledge on various principles of eco- systems and their functions.	6, 7	1, 2
CO3	To gain the knowledge on various principles, threats and conservation of bio diversity.	6, 7	1, 2
CO4	To understand the importance of national and international concern for protection of environment from various pollutants	6, 7	1, 2
CO5	To understand various social Issues related to Environment	6, 7	1, 2
CO6	To understand the impact of human population on the environment.	6, 7	1, 2

MODULE - I

Environmental studies–Introduction: - Definition, scope and importance, Measuring and defining environmental development indicators.

Environmental and Natural Resources: Renewable and non-renewable resources - Natural resources and associated problems - Forest resources - Use and over - exploitation, deforestation, case studies - Timber extraction, dams- benefits and problems.

MODULE - II

Basic Principles of Ecosystems Functioning: Concept of an ecosystem. -Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem Ecological succession. - Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem:

a) Forest Ecosystem
b) Grassland Ecosystem
c) Desert Ecosystem
d) Aquatic Ecosystem (Ponds, Streams, Lakes, Rivers, Oceans, Estuaries)

MODULE - III

Biodiversity and its conservation: Introduction – Definition- genetic, species and ecosystem diversity. Bio-geographical classification of India

Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. - Endangered and endemic species of India.

Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

MODULE - IV

Environmental Pollution: Definition, Cause, effects and control measures of

a) Air pollution
b) Water pollution
c) Soil pollution
d) Marine pollution
e) Noise pollution
f) Thermal pollution
g) Nuclear hazards

MODULE - V

Social Issues and the Environment: From unsustainable to sustainable development -Urban problems related to energy -Water conservation, rain water harvesting, and watershed management - Climate change, global warming, acid rain, ozone layer depletion , nuclear accidents and holocaust. Case Studies. – Waste land reclamation

MODULE - VI

Human Population and the Environment: Population growth, variation among nations. Population explosion Role of information Technology in Environment and human health. - Case Studies.

Field work: Visit to a local area to document environmental assets River /forest grassland/hill/mountain - Visit to a local polluted site-Urban/Rural/industrial/ Agricultural Study of common plants, insects, birds. - Study of simple ecosystems- pond, river, hill slopes, etc.

Text books:

1. Erach Bharucha, A Text Book of Environmental Studies for under graduate Courses, University Grants Commission.
2. Perspectives in environmental Studies, Anubha Kaushik and C P Kaushik, New Age International Publishers, New Delhi, 2018. 2. A Textbook of Environmental Studies, Shashi Chawla, McGraw Hill Education, New Delhi, 2017.

Reference Books:

3. Environmental Studies by Benny Joseph, McGraw Hill Education, New Delhi, 2017.
4. Fundamentals of environmental studies, Mahua Basu and S Xavier, Cambridge University Press, New Delhi, 2017.

SEMESTER – III

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
III	PL21B3C1	TRAFFIC & TRANSPORTATION PLANNING	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To know about road and regional development in transportation system	3,4,5	3,4,5
CO2	To do survey to know about origin and destination, demand and supply and methods of surveys to collect speed, volume, delay, parking data.	4,5,6,9	1,3,4
CO3	To do 4 stage modelling and economic analysis for various policies	2,4,8	3,5,6
CO4	To know about geometric and road designs	1,3,4	4,5
CO5	To understand the characteristics of traffic management and transport problems	1,2,3,8,9	3,5
CO6	To know about the impact of transportation on environment	4,5,6,9	2,3,4

MODULE- I

Transport and Road Development- Transport systems and their types, urban road hierarchy, Characteristics and role of various forms of transport, Historical perspective of road development in India; criteria for road and junction improvements, arterial improvement techniques, Economic, political and social significance and transport development, Transport policies and programmes in India before and after independence, Scope and content of Nagpur, Mumbai and Lucknow road development plans; Schemes for Road development in Urban and rural areas and industries, Road development Plan by Indian Roads Congress 2021.

Regional Transport Systems- Importance of accessibility in regional transport planning, role of road, rail, air and water transport system; regional transport systems planning; road network planning for micro-regions.

MODULE - II

Surveys and Studies- Demand and supply surveys and studies; traffic volume count, traffic density, traffic flow, Origin-Destination, Speed and delay, parking and accidents surveys, parking supply and demand, provision and layout of on street and off street parking– their need, design of preform, methods of conducting surveys, analysis and interpretation, traffic regulatory measures for parking, pedestrian volume studies, pedestrian facilities, accidents surveys.

MODULE - III

Urban Transportation planning Process (UTPS or 4 Stage modelling) - Introduction to transport planning process; trip generation, trip distribution, modal split, trip assignment, land use transportation models. Existing organizational and legal framework, urban transport policy planning; transport planning in developing countries.

Economic – Evaluation and Transport Policies- Pricing and funding of transport service and systems; economic appraisal of highway and transport projects; techniques for estimating direct and indirect road user costs benefits, value of time; review of national, state and local level transport policies and their relevance in spatial and economic planning, pricing and funding of transport systems; energy and environmental implications, National urban transport policies (2006, 2014), Transport policies in developing countries.

MODULE - IV

Geometric Design and Road design- Components of geometric design – Horizontal and vertical alignment, sight distance, cross section, alignment check lateral and vertical clearance, control of axis, design guidelines for transport infrastructure Road hierarchies, classification, capacity and level of service, space standards for road design, land acquisition- components, objectives and functions, intersection types – controlled and uncontrolled and rotaries, space sharing and time sharing junctions – their merits and demerits, design in built up areas, cycling and pedestrian systems – design considerations and guidelines, road and transport infrastructure terminals, depots, bus bays, stops, fuel stations etc.,

MODULE - V

Urbanization Transport Problem and Traffic Management- Traffic characteristics and problems at National, regional and urban level; Public and Intermediate Transport systems-Rationale, criteria, choices. Objectives, principles and approach for traffic management; traffic signs and signals; type's signs, signs standards, location and maintenance; traffic signals- types, advantages and disadvantages. Review of the existing traffic management schemes in case cities

MODULE - VI

Transport and Environment- Traffic noise, factors affecting noise, noise abatement measures, standards; air pollution standards; traffic safety; accident reporting and recording systems, factors affecting road safety, traffic and environmental management techniques; transport planning for target groups children adults, handicapped and women, norms and guidelines for highway landscape; street lighting types, standards and design considerations.

Text books:

1. Khanna& Justo: Highway Engineering
2. L.R. Kadiyali: Traffic and Transportation Planning, Vazirani and Chandola Transportation Engineering, New Delhi
3. Road Development Plan of India 2021 – Indian Road Congress
4. GV Rao: Principles of Transportation and Highway Engineering
5. VS Mahajan: Transport Planning, Policy and development

Reference Books:

1. John W. Dickey: Metropolitan Transportation Planning, Tat McGraw-Hill Publishing Company
2. S. K. Roy: Transportation Planning for developing Countries, Prentice – Hat India, New Delhi.
3. Hutchison .B.G: Principles of Urban Transport Systems Planning, McGraw Hill Book Company
4. Bruton M.J: Introduction to Transportation Planning, Hutchison & Company London

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
III	PL21B3C2	PLANNING TECHNIQUES	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To know about spatial standards and able to do spatial analysis	6,7,8	2,3,4
CO2	To analyse demographic changes over the years	2,4,8	4,5
CO3	To project population through various methods	2,4,7,8	3,5
CO4	To analyse various regional and metropolitan plans and	2,3,4,	2,
CO5	To do economic analysis while doing planning	8,11	4,5
CO6	To do master, structural and strategy plans using various techniques.	1,8,11	4,5,6

MODULE - I

Spatial Standards- Formulation of spatial standards for residential, industrial, commercial and recreational areas, space standards for facility areas and utilities. Performance standards.

Spatial Analysis- Comparative analysis techniques – Specialization, Concentration and Independence Systems approach to planning, understanding structure of urban areas density patterns, locational decisions forces of concentration, and dispersal association Gini coefficients and Lorenz curves, Spatial distribution analysis using cartography techniques, Rent and Gradient models, Location equilibrium of the firm transport and labour orientation, Market and supply area analysis and thresholds. Pure gravity models, Reilly's law and mapping of trade areas

MODULE - II

Demographic Analysis - Sources of demographic data; population structure and composition age sex composition, sex ratio, dependency ratio, child woman ratio; measures of age sex structure, age sex pyramid, population composition; marital status, cast region, literacy level, etc; life table techniques; techniques in preparing life tables, abridged; basic cohorts survival model, inter regional cohorts survival model.

MODULE - III

Population projection- Simplex population forecasting models – The linear model, Exponential curves, modified exponential, Gompertz growth curve, comparative method and ratio method. Composition population forecasting models – the cohort survival model, Migration model.

MODULE - IV

Regional Survey- Techniques for conducting regional surveys; data requirements for various types of regional plans; direct level plans, metropolitan region plans, backward regions, resource regions etc.; regional delineation techniques, rationalization cluster and factor analysis, input output techniques.

MODULE - V

Economic Analysis- Multipliers, Input Output Analysis, Brief introduction to projection techniques like ratio and econometric methods, Analysis of labour force; sectoral shifts and employment.

Cost Benefit Analysis- Identification of direct and indirect costs and benefits; Social costs and benefits;

Present value, future worth; Discount and compound factors using formulas and standard tables; Introduction to SWOT, IRR, NPV.

Cost Benefit Analysis- Identification of direct and indirect costs and benefits; Social costs and benefits; Present value, future worth; Discount and compound factors using formulas and standard tables; Introduction to SWOT, IRR, NPV.

MODULE – VI

Plan Preparation Techniques- Methods of identifying urban and regional problems, Setting of goals, objectives priorities. Methodologies for preparation of urban/regional development plans, master plans, structure plan and strategy plan techniques; plan implementation techniques; public participation and plan implementation; techniques of urban renewal and central area redevelopment. Delineation Techniques: Gravity Model, Centro graphic Technique, Distance functions.

Text books

1. An introduction to town planning technique / MARGARET, ROBERT
2. Planning and forecasting technique: an introduction to macroeconomics applications RABINSON, J N
3. Planning Theory / FALUDI, ANDREAS
4. Landuse Planning: Techniques of Implementation / PATTERSON, T WILLIUM
5. Planning Theory /Techniques ITPI Reader volume

Reference Books:

6. Government of India (2015), Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines. Vol. 1, Town and Country Planning Organization Ministry of Urban Development, New Delhi.
7. Sachithanandan (2004), Reading material on Planning Techniques, Institute of Town Planners India, New Delhi.
8. Sharma, Rajendra K (2004), Demography and Population Problems, Atlantic Publishing House, New Delhi.
9. Wang, Xinhao & Hofe, Rainer vom (2007), Research Methods in Urban and Regional Planning, Springer Berlin Heidelberg, New York.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
III	PL21B3C3	HOUSING & COMMUNITY PLANNING	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To know the characteristics, economics and issues of housing	2,4,6,7	1,3
CO2	To assess the demand for housing through quantitative and qualitative methods.	2,4,8	2,4
CO3	To understand the significance of housing policy and able to understand various factors effecting the housing development.	2,4,8	4,5,6
CO4	To understand the importance of standards and design aspects in housing.	3,4,9	1,4
CO5	To know about the investment, management and financing of various private and public sectors.	2,4,9, 11	4,5
CO6	To study the typologies from ancient to modern in housing.	2,4,9, 11	2,3,4

MODULE - I

Introduction-Define House, Housing; its importance in urban & regional planning, Housing and residential areas- characteristics, economic concepts; parameters of housing, National Development Goals; Equity and efficiency parameters of housing; current issues in housing. Housing as a Basic Human Necessity and a major land use component and integral sector of urban and regional development.

MODULE - II

Assessing Housing-Existing Housing Statistics; definitions; urban and rural housing statistics; introduction to concepts of Housing Shortage, Housing Need, quantitative and qualitative aspects of housing; Housing Demand – Understanding current methods of demand assessment; knowledge of data sources and their use and interpretation; census, NSSO and other data; Limitations of existing methods of assessments.

MODULE - III

Housing Standards and Design-Factors determining residential densities; Densities, costs and development control regulations; Housing design parameters and their relationship to costs; Housing design and climate; Housing for disaster prone areas.

Evolution of Housing-Evolution of housing the urban house history of modern housing typologies. (The age of the Renaissance, The industrial revolution, Current practices various design approaches].

MODULE – IV

Estimation- Purpose of estimation, methods of estimation, types of estimates-approximate estimates, definite estimate; levels of detailed estimate; Cost estimation and determination of rates for different types of housing; Cost estimation and determination of rates of works involved in the infrastructure services

(Roads, water supply, sewer systems etc.);
MODULE - V
Housing Policy Analysis-Understanding and evaluation of Housing Policy and programmes in India; five year plans, Central government policy; Policy frame work for urban and rural housing; Comparative policy analysis; Housing for the low income groups; Co-operative housing, objectives and principles; management and financing of housing projects; investment in housing in public and private sectors.
MODULE - VI
Housing typologies in various contexts-Brief review of the historical development of housing typologies in various contexts the pre urban house, Transient dwellings, Temporary dwellings, Semi permanent and permanent dwellings, the oriental urban house. (Mesopotamia, The Indus., Egypt, China, The Greek and the Romans).

Text Books/ Reference Books

1. Urban Development and Housing in India- 1947 To 2007, Rishi Muni Dwivedi, New Century Publications, 2007
2. Holding Their Ground: Secure Land Tenure for the Urban Poor in Developing Countries, Durand Lasserve and Royston L, Earthscan, 2002
3. Community Planning Handbook: Wates Nick, Routledge, 2014
4. Community Planning: An Introduction to the Comprehensive Plan, Eric Damian Kelly, Island Press, 2009

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
III	PL21B3S1	SITE PLANNING & BUILT ENVIRONMENT	0	10	0	10	100	100	200

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand built elements and their effects on environment.	2,3,4	1,3,4
CO2	To know about the various effects and changes in the climate.	4,7,8	2,4,5
CO3	To analyse the site elements	2,3,4	2,3, 5
CO4	To know about various guidelines and building codes while developing a site.	1,8,11	2,3,4
CO5	To integrate all the surrounding site elements.	2,3,4,11	1,3,5
CO6	To know about unit level of elements at a site	2,3,4,11	3,5,6

MODULE - I

Introduction to the built environment: Site planning process and built environment, components of the natural and built environment, Eco-systems and their relevance to environment, resources and human settlements, Modifications in the natural environment, causes and consequences.

MODULE - II

Climatology-Introduction to effects of micro and macro climates on built forms, orientation, and ventilation, protection from excessive sun, rain, dust and insects. Students in groups of 3-4 shall study the effects of climate on buildings, open spaces, vegetation and draft a report on protecting buildings from climatic variations of a local campus.

MODULE - III

Site Appraisal and Analysis-Site analysis and user analysis including environment and quality of life. Inventory of existing features of a selected site (minimum 10 acres) understanding contours. Cut and fill vs geomorphic approach to site development, principles of geomorphic layout, and types of soils, slopes, natural drainage pattern, type's vegetation and their implications on the development of the site. Students in groups of 3-4 have to survey a selected site and study the natural features.

MODULE - IV

Guidelines-The study shall relate to layout level regulation modules of GRIHA, LEED and HMDA Guidelines on Environment and National Building Codes.

Studying and developing alternatives following DCRs and developing design drawings, case study findings preparation of design brief

MODULE – V
Site planning-One Minor studio exercise emphasizing on relationship between built form and outdoor areas and site planning issues for any one of the areas such as institutional campus plans, residential layouts or IT parks layouts. Exercise on understanding and modifying land form Examples- Surface Parking Plan, Road layouts (grading and alignment) layouts of small communities etc.;
MODULE - VI
Unit level drawings-Preparation of plans, sections and elevations of building typologies following building byelaws and zoning regulations. **Role of landscape,** its environmental benefits, functional requirements, aesthetic considerations, and principles of organizing outdoor spaces need to be emphasized. Community layouts containing 20-30 houses have to be analyzed.

Text books:

1. R Gene Brook: Site planning, environment, process and development TSS, NBC
2. Kevin Lynch: Site Planning
3. Landscape and Land use Planning by lovJoy

Reference Books:

4. Michael Laurie: An introduction to landscape architecture
5. Tom Turner: Landscape Planning
6. S. K. Bhattarcharjee: Landscape Gardening & Design with Plants

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
III	PL21B3P1	CAD APPLICATIONS IN PLANNING	0	0	6	6	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To know the spatial data elements	2,4,6	1,4
CO2	To know the importance of coordinate system and able to know drawing limits.	3,4,5	2,3
CO3	To know various commands and able to draw various 2d figures	4,5,6	4,5
CO4	To understand the difference between 2d and 3 d modelling	3,4,5,6	2,3,4
CO5	To digitize and creates layouts for planning with various maps	3,4,5,6	3,4,6
CO6	To know about statistical tools and proficient in physical planning	2,3,4,5,6	3,4,5,6

MODULE - I

Starting AutoCAD- Introduction to the menu, starting drawings from scratch, Creating and using templates starting drawings with setup wizards. Saving and closing a file.

Introduction to AutoCAD - Spatial data elements in CAD, basic commands in CAD - lines, rectangles, polylines, points, circles, donuts, layers, grids, snaps and object snaps, etc.

MODULE - II

Using co-ordinate system - The UCS, Working with Cartesian and polar co-ordinate systems, using displays with key shortcuts.

Setting up the drawing environment- Setting the paper size, Setting units, Setting grid limits, drawing limits, Snap controls, Use of paper space and model space.

MODULE - III

Basic 2d drawing and editing commands- Basic commands dealing with drawing properties, Layer control, change properties, line weight control, etc. Inquiry methods, Using database information for objects, calculating distance and angle, areas.

MODULE - IV

Blocks- Creating and working with blocks, creating symbols, use of blocks in creating a, layout of a residential area one exercise to be done as lab assignment. 2D & 3D conversion, perspective view, walk through of layout.

MODULE - V

Digital cartography- Use of AutoCAD Map in creating and editing maps. Scanning the primary source/ map, importing / scanned maps/ images / drawings into AutoCAD, digitizing / vector sing and editing, creating a layout / map and printing one exercise to be done as lab assignment. Expected Outputs& Assignment Students shall prepare a base map using CAD for any given area. Practical shall be conducted from time to time for internal assessment.
MODULE - V I
Application of CAD- CAD drawings, photo editing, audio and visual editing software and statistical tools and their application in planning discipline and e-governance.

Text Books:

1. Mastering Auto CAD-2011 and Auto CAD LT 2011.
2. Auto Desk official training guide.
3. Wiley publishing Inc. By George Omura.
4. Learning Auto CAD-2010 Auto desk official training guide

Reference Books:

5. Douglas, Seidler R (2007), Digital Drawing for Designers – A Visual Guide to AutoCAD, Firchild Publications, Inc., New York.
6. Magurie, Dennis (1988), Engineering Drawing From First Principles – Using AutoCAD, Arnold Publishers, Great Britain.
7. Government of India (2010) Guidelines for GIS Mapping, MIS Development and Integration of GIS with MIS, Ministry of Housing and Urban Poverty Alleviation, New Delhi.
8. Government of India (2006) TCPO, MOUD, National Urban Information System – Design and Standards, Government of India, New Delhi.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
III	PL21B3K1	DATA ANALYTICS IN PLANNING	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the basics on data and its relation to urban planning	1	1,2
CO2	To implement data in various planning domains	1,2	2,3,4,6
CO3	To represent data visualization	1,3,4	3,4,5,6
CO4	To apply statistical and spatial data into graphical representation	1,2,3,4	3,4,5
CO5	To understand big data and its relevance to planning	1,2	1,2,
CO6	To understand big data and smart cities	1,2	1,2

MODULE - I

Data and its attributes, types of data, Statistical data and methods, collection of data, sources of data. Database for planning and socio - economic surveys: Data requirements for urban and regional planning, sources of primary and secondary data.

MODULE - II

Fundamental data applications Computer application: Data processing, word processing and presentation software. Spread sheets and databases.; sourcing data, analyzing data via statistical testing, and presenting data through written reports and visualizations. basic elements of maps, how to map and spatial representation of data

MODULE - III

Appreciation studies of land use classification of residential, commercial, institutional, transportation, recreation areas in small urban and/ or rural settlements; Tabulation and graphic presentation of statistical data; Use of monochrome and colour coding, black and white as presentation techniques by using internationally accepted hatching patterns.

MODULE - IV

Graphic presentation of statistical data: Application of statistical data analyses and presentation in the context of planning. Tabulation of data, and graphical presentation of data like pie diagrams, histograms, bar charts, normal, semi-log and double-log graphs and understanding their suitability and uses. Color, black and white presentation techniques.
Graphic presentation of spatial data: Land use classification, coding and analysis, residential and non-residential density patterns and analysis. Color, black and white presentation techniques. Understanding basic elements of maps

MODULE - V

Big data – An introduction Defining big data and what makes it ‘big’; Emergence of data science and big data; Importance and utility of big data in planning; Characteristics of big data; Links between big data, urban and regional planning, development, management and policy making. Different tools for making maps with big data;

MODULE – VI
Big Data and Smart Cities- Explore big data in the context of smart cities; Learning use of real-time and crowd sourced data collection and use; Interactive data visualization in the context of smart cities and regions.

Text Books & Reference Books:

1. Jain, V.K. (2018) Big Data and Hadoop, Khanna Book Publishing Co., New Delhi.

2. Carta, S. (2019) Big Data, Code and the Discrete City, Shaping Public Realms, Routledge, London.

3. Desouza, K. and Smith, K. (2016) Big Data and Planning, PAS Report 585, American Planning Association, Washington, D.C.

SEMESTER	Course Code	Course Title	L	T	P/S	C	Int. Marks	Ext. Marks	Total Marks
III	MC21B301	**Indian Constitution**	1	0	0	0	-	-	-

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To Know the background of the present constitution of India.	6, 7	1, 2
CO2	To Understand the working of the union, state and local levels.	6, 7	1, 2
CO3	To Gain consciousness on the fundamental rights and duties.	6, 7	1, 2
CO4	To understand the functioning and distribution of financial resources between the centre and states.	6, 7	1, 2
CO5	Be exposed to the reality of hierarchical Indian social structure and the ways the grievances of the deprived sections can be addressed to raise human dignity in a democratic way.	6, 7	1, 2
CO6	To understand the international relations of India with the surrounding countries	6, 7	1, 2

MODULE - I

Evolution of the Indian Constitution: 1909 Act, 1919 Act and 1935 Act. Constituent Assembly: Composition and Functions; Fundamental features of the Indian Constitution.

MODULE - II

Union Government: Executive-President, Prime Minister, Council of Minister
State Government: Executive: Governor, Chief Minister, Council of Minister
Local Government: Panchayat Raj Institutions, Urban Government

MODULE - III

Rights and Duties: Fundamental Rights, Directive principles, Fundamental Duties

MODULE - IV

Relation between Federal and Provincial units: Union-State relations, Administrative, legislative and Financial, Inter State council, NITI Ayog, Finance Commission of India

MODULE - V

Statutory Institutions: Elections-Election Commission of India, National Human Rights Commission, National Commission for Women

MODULE - VI

India's External Relations: Cold War and Post-Cold War era. What is Foreign Policy? Basic Determinates of Foreign Policy Indian and its Neighbor's India's Extended Neighborhood in West Asia and South East Asia. India's relations with the United States and Russia. India and the World Organizations India in the 21st century

Reference Books:

1. D.D. Basu, Introduction to the constitution of India, Lexis Nexis, New Delhi

2. Subhash Kashyap, Our Parliament, National Book Trust, New Delhi

3. Peu Ghosh, Indian Government &Politics, Prentice Hall of India, New Delhi

4. B.Z. Fadia & Kuldeep Fadia, Indian Government &Politics, Lexis Nexis, New Delhi

SEMESTER – IV

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
IV	PL21B4C1	PLANNING PRINCIPLES	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To describe the primary functions & elements of planning and explain the principles of spatial planning.	1, 2, 3	1, 2
CO2	To know the Outline of the planning and controlling processes.	3, 4	1, 2, 3
CO3	To understand the physical planning processes	3, 4	2, 3, 4
CO4	To Illustrate modern and contemporary Planning with example cities	7, 8, 10	3, 4, 6
CO5	To know the planning hierarchy, plans, schemes, planning administration and role of planning in India.	10, 11, 12	2, 4, 5
CO6	To Explain the Land Use Planning and relation with other planning processes to learn planning principles	6, 7, 8	2, 3, 4

MODULE - I

Introduction- The significance and importance of studying history, human settlement as the physical expression of a civilization; increasing urbanization and the need for higher levels of expertise to handle the situation in the future; human settlements planning.

Elements and Dimensions of Planning- The idea of scale, an element of settlement planning space form and structure, and the technical, characteristics of form throughout the ages. Time as dimensions of the constructed form; space and size as followed by various civilizations; the elements of the town, the home, the street, the chowk; social and cultural factors for the location of towns and activities inside them.

MODULE - II

The Meaning of Planning- Definitions, planning as a hierarchical process, systems concept, systematic planning, planning as a problem-solving process, philosophy and purpose of planning, justification of planning, normative planning, positive planning and ameliorative planning, ecological perspective of planning, the scope and meaning and objectives of planning; town planning as a practice, profession and discipline; the nature of town planning problems; development of planning thought.

MODULE - III

Physical Planning- Origin of physical planning; essential features and cornerstones of physical planning, changes within physical environment; systemic change, systems approach to physical planning, control mechanisms, physical planning as a guidance and control of change, contributions of physical to economic and social development, planning in transition; dimensions of change, future directions. Process of Planning: Definition and meaning of values, norms, goals and objectives; methodology of goal formulation;

Development plans; structure plans, local plans, district plans, action area plans, public participation, people and plans; regional planning.
MODULE - IV
The Modern City- Technological advances and their effect on the town; utopian thinking and movements about urban improvement and planning; the concept of neighborhood planning; planning concept and city structure in typical new town design, foreign examples; planning concept of Chandigarh. Synthesis: The concept of ring towns and satellite towns; Delhi Master Plan and the concept of NCR, disorientation of contemporary towns from their cultural context.
MODULE - V
Planning Practice in India- Town planning schemes, comprehensive development plans for towns and cities, regional plans, metropolitan planning and metropolitan region development plans; scope and content of planning practice today; role of central, state and local governments in urban and regional planning and development; evolution of local governments, development authorities and other planning and development agencies and their role in planning and planning administration.
MODULE - VI
Rationale of Land Use Planning - Concepts of land, location attributes and land uses, determinants of land use and relationship to the Planning Process, Approach to land use planning. Land use and transportation planning. Transport Network classification and standards, elements, etc. **Planning principles-** Land use planning information system and activity systems and choice of space qualities; Systems approach and physical planning. Plan Preparation and Implementation Agencies: Central, state and local government agencies; management structures of agencies; development control; regulations; importance of town and country planning acts in India.

Text books/ Reference Books:

1. Binode Behari Dutt (2009), Town Planning in Ancient India, Thacker Spink and Co., Calcutta.
2. Gallion, A (1963), the Urban Pattern; City Planning and Design, D.V. Nostrand Company Inc., New York.
3. Hakim S Besim (1986), Arabic-Islamic Cities; Building and Planning Principles, Emergent City Press, New York.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
IV	PL21B4C2	INFRASTRUCTURE PLANNING	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To Achieve Knowledge of Planning and know about physical infrastructure planning. (Water supply, power supply, sewerage, drainage, waste water management, etc.). To Know the types of water treatment process and supply system.	1, 3	1, 2, 3
CO2	To make the student understand conveyance system of sewage and Effects, Estimation of sanitary sewage flow.	1, 4, 7	2, 4
CO3	To estimate storm water flow and design storm water system	1, 4, 7	2, 3, 4
CO4	To understand solid waste management processes	1, 2	2, 3, 4
CO5	To Achieve Knowledge Social infrastructure planning and urban infrastructure	1, 5, 6	1, 4, 5
CO6	To understand Relationship between regional planning, urban planning, urban design , and infrastructure	8, 11	2, 3, 4

MODULE - I

Introduction, Basic Concepts and Theories- Role of physical planner in planning of utilities and services; objectives of utilities and services planning and implications for public health and environmental protection. **Planning for Physical Infrastructure-** Basic need approach, Planning standards, spatial standards.

Water Supply System- Various sources of water supply, water requirement for different land uses, factors affecting water demand, per capita requirement and its relationship with population sizes, variation of water consumption, Planning of water supply system, organizations and their jurisdictions, basic design guideline and layout of water supply distribution system; Financing water supply system, public and private partnership of providing water; Legal aspects and government policy for urban and rural water supply.

MODULE - II

Sanitation and Sewer System- Methods of sanitations, onsite and off-site sanitation, low-cost appropriate technologies for sanitation. Quantity of sewage, standards for Indian cities; Sanitary sewer system, network and layout, data needs and procedure of planning; and septic tanks. Sewage disposal methods and their advantages and disadvantages, location criteria and capacity.

MODULE - III

Storm Water System- Significance of interpretation and presentation of rain fall data; Surface water runoff, hydrograph, method for estimating run off, unit hydrograph and its application, definition of watershed; flood frequencies, flood protection measures in urban areas.

Layout and design of storm water system; general considerations, inlets, self- cleaning velocity, non-scouring velocity, physical layout-design principles, data requirement

MODULE - IV

Solid Waste Management- Solid waste management for Indian cities, issues and data base, Methods of solid waste management, collection and transportation, disposal of solid waste; Land filling and composting, pre and post treatment - Area requirements, location and cost aspects of different methods of solid waste disposal systems; Community participation and NGOs, involvement in solid waste management.

MODULE - V

Planning for Social Infrastructure- Basic need approach, Health, Education, Religion, Recreation, Cultural, planning for fire protection Planning standards, spatial standards, Hierarchy of provision different types of units and scales, critical issues in public and private development, ownership, management and maintenance of the same, UIDSSMT.

Other aspects of Urban Infrastructure- Integrated Infrastructure Planning, socio-cultural aspects, Decentralization, community participation in the delivery of services and networks, problems of operation and maintenance; Environmental issues related to quality and level of network and services, impacts of choice of technology, system design, costs benefits to the urban community, Effects of land use and density, City Development Strategy.

MODULE - VI

Infrastructure and Regional Development- Telecommunication, cable T.V., Wireless communications, digital communications Internet and intranet, regional poverty and basic needs; regional infrastructure network systems, Physical (roads, irrigation system, water supply, sanitation, drainage, watershed management, fire services, telecommunication, energy, electricity, solid waste disposal etc.), Social (Health and education) & Economics (banking, marketing and public distribution systems), Environmental, social and economic impacts of infrastructure network system, Role of District Planning Committee, Case Studies in District and Regional Planning.

Text books/ Reference Books:

1. Arora K.R: Irrigation, Water Power and water Resource Engineering, Standard Publishers distributors, New Delhi
2. Gurcharansingh: Water supply and Sanitary Engineering-, Standard Publishers, Distributors, New Delhi.
3. AK. Chatterjee: Water Supply, Waste Disposal and Environmental Poll. Engineering
4. Khanna publishers
5. Garge S.K: Hydrology and Water Resource Engineering, Standard Publishers
6. G.S. Birdie: Water supply and Sanitary Engineering
   Reports and research studies by HSMI

7. Reader volumes by ITPI

8. Infrastructure Planning, James Parkin and D. Sharma, Thomas Telford, 1999

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
IV	PL21BC3	PLANNING FOR INFORMAL SECTOR	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To discuss the importance and constraints associated with informal sector in urban areas.	1, 2	1, 2
CO2	To know about slums and its characteristics, planning contributions for alternate approaches.	1, 2	1, 2
CO3	To Characteristics of migrants and their association with growth of informal sector, urban planning and cities growth.	3, 4, 6	1, 2, 4
CO4	To understand growth of informal settlements in cities and their impact	7, 8	3, 5
CO5	To understand the issues involved in the planning and management of informal sector with case studies.	7, 9, 12	3, 4
CO6	Understanding Inclusive Planning Definitions and components Stakeholders Profile and Needs, Access to Shelter, Services and Livelihoods. To explain the infrastructural and institutional interventions for informal settlements and economy	7, 8	4, 5

MODULE - I

Informality and Poverty- Characteristics of informal economic activities, other types of informality; informal sector vis-à-vis poverty; Dimensions of urban poverty, magnitude of problem, urban poverty alleviation programs; impact of macro-economic structural adjustment policies on poor urban households.

Informality in the commercial sector- Formal and informal economy at the local scale; types and categories of informal sector service providers; advantages and disadvantages in the Indian context; statistics related to employment and turnover of informal sector market; examples of integration between formal and informal sector market entities; dependency factors of local economy on formal sector.

MODULE - II

Slum- slums – definitions, legislation, dimensions, causative factors, determinants, location characteristics of settlements; Informal sector- growth, characteristics, functions, linkages with formal sector.

Basic Needs and Alternative Approaches for delivery of Basic Services to the Urban Poor Development of the concept of basic needs; identification of basic needs and their provision for various target groups and informal sectors; standards for basic needs, NGOs and voluntary organizations associated with provision of basic needs, Alternative Approaches for Delivery of Basic Services to the Urban Poor- Community planning approach, low cost alternatives and institutional reforms approach.

MODULE - III

Migratory Impulses and Impact on/of Informal Sector- Development of informal sector concept, Characteristics of migrants and their association with growth of informal sector; socio-economic deprivation and informal sector; role of informal sector in housing stock, economy, commercial activities, impact on Urban Development; implications in physical planning.

MODULE - IV

Consequences of spontaneous Growth- Study of major aspects; spontaneous living and working, their characteristics and functions in urban context, consequences of spontaneous growth on various aspects of urban planning and management (land use, development control, densities, water supply, drainage, sanitation, traffic, etc.)

MODULE - V

Management of Informal Sector - Case Studies- Actions for improvement, appraisal of the role of government, private and voluntary organizations; existing management; their organizational set up and limitations; planning and development of urban settlements in respect of the spontaneous growth; case studies from India and other developing countries.

Understanding the geography of informal occupations; Rationalizing the space for informal activities; An overview of the regulatory statutes.

Understanding skill – livelihood synergy; Skill mapping of urban informal community; Identification of skill gap - measures for skill formation and skill upgradation

MODULE - VI

Inclusive Urban Planning- Definitions and Components, Stakeholders- their role, Planning interventions- Inclusive zoning, development and building regulations, slum development, Plans, Policies and Programmes, Legislation- Related Acts, Five year plans, policies and programmes at various levels. The RAY program and the AP MEPMA - Guidelines, standards, processes and progress in 'Slum Free City Planning'.

Spatial justice to urban informal economy – statutory allocation of urban land to urban informal activity; Identification of hot spots of urban poverty- ghettoization; The economics of location of informal settlements

Text books/ Reference Books:

1. Ravinder Singh: Sustainable Human Settlements – The Asian Experiences, SandhuRawat publication
2. Penelope J. Brooke: Infrastructure for poor people – Public policy for private Participation
3. UN- Habitat, The challenge of slums, London, Earthscan, 2003
4. Jain, A.K., Inclusive planning and social infrastructure, New Delhi, Wiley Eastern, 2010
5. Housing and Urban Development Corporation, HUDCO 2001 and housing the urban poor of India
6. M.S. Ramanujan Employment promotion on the Urban Informal Sector - New age

International publishers

7. Satish Tiwari: Urban Development,Anmol Publications, and New Delhi

8. Amitabh Kundu: On the name of Urban poor – Access to Basic Amenities, Sage Publications.

9. Informal Sector in Indian Economy: The Way Ahead, Dipa Mukherjee, Rawat Publications, 2009

10. Urban Informal Sector in A Developing Economy, T. S. Papola, Vikas, 1981

11. Urban Poor and Urban Informal Sector, Abdul Aziz, Ashish Publishing House, 1984

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
IV	PL21B4C4	RURAL DEVELOPMENT	4	0	0	4	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To introduce Rural Development Concept, Objectives and Indicators Strategies, and Theories	1, 3	1, 2, 3
CO2	To impart knowledge about Rural Development Experiences in India.	7, 8	3, 4
CO3	To know about Policies for Rural Development, Rural Development Programmes in India since Independence, Current Rural Development Programmes and rural planning processes	7, 8, 11	4, 5
CO4	To understand resource planning and management in rural areas.	7, 8, 11	4, 5
CO5	To know about peoples participation in rural development	7, 9, 12	2, 3
CO6	To know about Post 73rd Amendment Scenario in planning and understand three tier panchayat raj system.	6, 8	2, 3, 4

MODULE - I

Introduction- Village as an organic entity; physical, social and economic structure of village; village problems related to cultivated land, cultivable land, waste land, flooding and water logging, utilities and services, poverty and distress; rural urban relationship; complementarities, continuation and dichotomy; problems related to rural-urban migration.

Village Planning: Concepts and Institutional Framework- Trans-humane, accessibility of villages, inter village communication, delivery of social services, and improvement of rural sanitation, hygiene and drainage.

Demography, physiography and the socio - economic structure of rural settlements; Infrastructural profile of rural settlements; Constraints for rural development

MODULE - II

Roots of Rural Development in India- Rural reconstruction and Sarvodaya programme before independence; Impact of voluntary effort and Sarvodaya Movement on rural development; Constitutional direction, directive principles; Panchayati Raj – beginning of planning and community development; National extension services.

Post-Independence rural Development- Balwant Raj Mehta Committee – three tier system of rural local Government; Need and scope for people's participation and Panchayati Raj; Ashok Mehta Committee – Linkage between Panchayati Raj, participation and rural development.

MODULE – III

Rural Planning in Relation to National and Regional Policies Norms, principleand strategies for rural development; Five year Plans and Rural development, Planning process at National, State, Regional and District levels; afforestation, soil conservation and wild life preservation; planning for sustainable agriculture; rural development programs.

Structure of rural governance; Powers and functions of grama sabhas and grama panchayat; Mapping rural development schemes

MODULE - IV

Resources Planning Development and Management- Endowments; types of resources, exhaustive and replenishible resources development; utilization and conservation of national, technological and human resources, natural resources planning and management, recycling of resources and resources equilibrium; water resource management, waste land management; rural industrialization and use of non-conventional energy in rural development; major resource development programs in India; case studies of resource development projects in agriculture, forestry, minerals, water, manpower, etc.

MODULE - V

Community Development and Participation- Community development, community development and rural planning; base principles of self-help techniques and role of voluntary organizations in community development; appropriate technologies, innovation and entrepreneurship.

Community driven rights based development; Rural marketing and mobility: the last mile distribution; Development of market and warehouse; Rural housing and sanitation.

MODULE - VI

Post 73rd Amendment Scenario- 73rd Constitution (Amendment) Act – XI schedule, devolution of powers, functions and finance, Panchayati Raj institutions – organizational linkages; Recent charges in rural local planning; Gram Sabha – revitalized Panchayati Raj Institutionalization; resource mapping, resource mobilization including social mobilization; Information Technology and rural planning; Need for further Amendments-PURA Concept.

Text books/ Reference Books:

1. Satish Tiwan: Rural Development
2. Ashok Kumar: New Approaches is Rural Development
3. D. Robins, W Tansly& K G Wills: Rural Resources Development
4. Vivender Singh K: Socio – Economic Planning for Rural Development
5. Rural Development: Concept and Recent Approaches, Sujit Kumar Paul, Concept Publishing, 2015
6. Rural Infrastructure, S.B. Verma and Others (Eds.), Sarup and Sons, 2008
7. Village Information System for Development Planning, H.R. Yadav (Ed.), Concept Publishing, 2013
8. Rural Development in the Era of Globalization, B. Suresh Lal, Serial Publications
9. Rural Housing: Policies and Practices, Bhaskar Majumder, Rawat Publications,

2007

10. Rural Development In India: Retrospect and Prospect, Komol Singha, Concept Publishing Company, 2010

11. Rural Resource Management , Paul J. Cloke (Eds.), Routledge, 2014

12. Rural Development, Principles, Policies and Management, Katar Singh, Sage Publication, 2010

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
IV	PL21B4S1	NEIGHBOURHOOD & AREA PLANNING	0	9	0	9	100	100	200

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To define 'neighborhood', list the characteristics of a desirable neighborhood and survey conducting.	1, 3	1, 2
CO2	To know the purpose of site visits, data collection & data analysis. identify major socio – economic, physical, environmental and regulatory issues pertinent to revitalize neighborhoods	3, 4	2, 3, 6
CO3	To know about basic bye laws and regulations in planning.	6, 7, 8	2, 3, 4
CO4	To understand Neighborhood planning, urban development, redevelopment, &community design.	1, 7, 8	2, 4
CO5	To explain the steps in planning affordable and environmentally sustainable neighborhood project	10, 11	5, 6

MODULE - I

Introduction to Neighborhood- Study of a neighborhood involving location, salient features, spatial characteristics, facilities and amenities, road circulation patterns, spatial and non-spatial linkages to surrounding areas.

Appreciation of various neighborhood elements – existing and alternative built form, road network, connectivity to surrounding land, FAR, densities, building heights, open spaces, vacant land parcel, surrounding urbans cape and skyline; Gated enclaves; Documentation of neighborhood typologies and respective characteristics

MODULE - II

Surveys- Prepare a broad-based questionnaire under the categories of land use type, building condition, aesthetics, socioeconomic character, infrastructure, and many others; and also determine the sample unit and type to be adopted.

Site Visit- Identify the area/locality on a city map, Field visits to investigate land use, activities, area boundaries, circulation, open spaces, drainage, building types, water requirements, and sanitation.

Site Analysis and Conceptual Approach to Site Planning- Site analysis, development standards and preparation of the design brief; various considerations for site layout, conceptual approach to site planning. Collect socioeconomic data, identify planning issues, challenges, and opportunities in the region. Study of development alternatives following DCRs compatible for the site; Development and design standards based

on case study findings and preparation of the design brief; Matching site potential with design brief
MODULE – III
Standards and Byelaws- Comparison with standards, building byelaws, Zoning regulations and NBC codes also shall be undertaken to understand implications of byelaws and regulations. **Issue Identification-** Identify significant issues mostly in physical, visual, and environmental spheres. Create land usage and other maps.
MODULE - IV
Area Analysis - Preparation of preliminary layout and area analysis; General principles and factors to be considered in planning and development of service networks, zones, and location of activities and buildings. Prepare base map of the neighborhood along with all neighborhood elements, create final layout for the neighborhood.
MODULE - V
Layout Preparation- Final layout showing the circulation and basic infrastructure, formulation of alternative strategies and final proposal. Preparation and evaluation of preliminary layout; Final layout showing plan, sections and elevation of housing typologies, circulation pattern and basic infrastructures following existing statutes; Preparation of presentation drawings; Preparation of model to an appropriate scale.
MODULE - VI
Preparation of Unit Level Drawings: Preparation of plans, sections, elevations and important details of different housing typologies following the building byelaws and zoning regulations. **Costing:** Provisional costing of the proposal on the basis of statutory schedule of rates.

Text books/ Reference Books:

1. Government of India (2015), Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines. Vol. 1, Town and Country Planning Organization, Ministry of Urban Development, New Delhi.
2. Manitoba Intergovernmental Affairs and City of Winnipeg's Planning, Property and Development, Department of Planning and Land Use Division (2002), A Guide for Developing Neighborhood Plan, USA.
3. R.Thomas Russ (2009), Site Planning and Design Handbook. McGraw Hill Publications.
4. Singh.K (2009), Rural Development Principles, Policies and Management. Sage Publications, Pvt. Ltd, New Delhi.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
IV	PL21B4K1	GEOGRAPHICAL INFORMATION SYSTEMS	0	0	3	3	100	100	200

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To educate students in Geographic Information Systems (GIS) and its applications (Master Plans)	1, 5, 6	1, 2
CO2	To analyse data, explore issues, problem solve, and evaluate situations in a geographic and spatial context	5, 6, 11	3, 4
CO3	Analyse spatial data, using GIS analysis tools and Explore mapped data and modelling, carry out projection transformation and preparation of database for GIS maps.	5, 6, 8	4, 5
CO4	To create maps, modelling and can do spatial analysis in GIS	3, 5, 6	4, 5
CO5	To learn applications of GIS in urban development, infrastructure planning and disaster management.	3, 4, 6	2, 4, 5
CO6	To learn applications of GIS in housing. (prepare land suitability maps and topography maps, perform GIS analysis through query building, map overlay and geoprocessing)	9, 10, 11	2, 4, 5

MODULE - I

Introducing to GIS- Definition ,concepts, components and their functions ,input and output elements, data types ,Coordinate system and geo-coding, vector and raster data structures, spatial data creation, linking of attributedata.

GIS based Master plan preparation- Government Initiatives: National Urban Information System (NUIS), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Study of Design and Standards, Smart city Mission, Urban and Regional Development Plan Formulation and Implementation (URDPFI) guidelines, BHUVAN services, e-governance mechanism and applications.

MODULE - II

Statistical Applications- General concepts- statistical interference, population and samples variables, Sampling, simple statistical models, Measures of central Tendency, Measures of Dispersion, Measures of shape of distribution, Correlation and regression

Relating non-spatial data; Attribute data: overview of tables, joining and relating tables, editing, calculating and importing tables

MODULE - III

Geo-spatial Data Base Creation for Master plan preparation- Demarcation of planning and mapping

Area, data generation through primary, secondary and GPS/DGPS Survey, data analysis, value addition, quality check and vetting, etc.

Geo-spatial DataBase Map Generation - Urban base map creation using National Design and Standards. Formulation of master plan of cities as per State Town and Country Planning Act which includes attribute collection, vetting of maps primary and secondary survey, sector-wise data analysis, demand assessment, identification of issues, development strategies, etc.

MODULE - IV

GIS Modelling- Overlay functions in GIS; using attribute over spatial data in Modelling; case study-based land suitability analysis; Modelling service area for social infrastructures; impact analysis

Land suitability analysis: methods of overlay; Spatial analyst; 3D analysis for Digital Elevation Model (DEM)

Base maps; Thematic maps; Spatial queries; Queries on tables : managing results from queries; Geocoding process

Spatial analysis: buffering, dissolve, intersect, union, extraction, clip, erase, append and merge

Presenting maps in GIS software: assigning scales, setting scale bars, labelling, text and annotation

MODULE - V

Urban Development and Management- RS and GIS in spatial planning: Urban sprawl and urban growth, modeling of urban growth, land use change analysis, space use survey, identification of squatters and assessment.

RS and GIS in infrastructure planning: Municipal GIS and its applications in infrastructure and utility mapping, solid waste management.

RS and GIS in Disaster Management: Applications of GIS in pre-disaster planning, prevention and preparedness (environmental sensitivity analysis, vulnerability analysis, urban hazard Mapping, seismic risk assessment, flood zoning assessment, etc.,), post disaster damage assessment, early warning systems.

MODULE - VI

Applications of GIS and Remote sensing in housing- Detailed understanding of flag-ship programs like Pradhan Mantri awas yojana urban(PMAY-U), slum free city plan if action(SFCPoA), Rajiv Awas Yojana(RAY), Indra Awas Yojana(IAY) and Real Estate Regulatory Act(RERA), Swatch Bharat,Hriday etc.

Integrating GIS and Global Positioning System (GPS)

Text books/ Reference Books:

1. Roger Tomlinson: Thinking about GIS; Stephen Wise: GIS Basics Tor Bernhardsen: Geographic Information Systems (An Introduction)
2. Keith C. Clarke: Getting Started with Geographic Information Systems MapInfo Corp., Troy, New York, MapInfo Professional
3. MapInfo Corp., Troy, New York, MapInfo Professional (Users Guide)
4. Keith C. Clarke, Bradley O Parks, and Michael P Crane, Geographic Information Systems

& Environmental Modeling: Andy Mitchell, the ESRI Guide to GIS Analysis

5. Bob Booth: Getting Started with Arc Info – GIS by ESRI Bruce Ellsworth Davis, Bruce Davis: GIS_ A Visual Approach
6. David Martin: Geographic Information Systems (Socio Economic Applications)

SEMESTER	Course Code	Course Title	L	T	P/S	C	Int. Marks	Ext. Marks	Total Marks
IV	MC21B401	**Essence of Indian Traditional Knowledge**	1	0	0	0	-	-	-

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To Identify the concept of Traditional knowledge and its importance.	6, 7	1, 2
CO2	To Explain the need and importance of protecting traditional knowledge.	6, 7	1, 2
CO3	To Illustrate the various enactments related to the protection of traditional knowledge.	6, 7	1, 2
CO4	To Interpret the concepts of Intellectual property to protect the traditional knowledge.	6, 7	1, 2
CO5	To Explain the importance of Traditional knowledge in Agriculture and Medicine.	6, 7	1, 2
CO6	To understand the importance of Indian ancient education system and benefits	6, 7	1, 2

MODULE - I

Introduction to traditional knowledge: Define traditional knowledge, nature and characteristics, scope and importance, kinds of traditional knowledge, Indigenous Knowledge (IK), characteristics, traditional knowledge vis-a-vis indigenous knowledge, traditional knowledge Vs western knowledge traditional knowledge.

MODULE - II

Legal framework and TK: The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, Plant Varieties Protection and Farmer's Rights Act, 2001 (PPVFR Act); The Biological Diversity Act 2002 and Rules 2004, the protection of traditional knowledge bill, 2016.

MODULE - III

Protection of traditional knowledge: The need for protecting traditional knowledge Significance of TK Protection, value of TK in global economy, Role of Government to harness TK.

MODULE - IV

Traditional knowledge and intellectual property: Systems of traditional knowledge protection, Legal concepts for the protection of traditional knowledge, Patents and traditional knowledge, Strategies to increase protection of traditional knowledge.

MODULE - V
Traditional Knowledge in Different Sectors: Traditional knowledge and engineering, Traditional medicine system, TK in agriculture, Traditional societies depend on it for their food and healthcare needs, Importance of conservation and sustainable development of environment, Management of biodiversity, Food security of the country and protection of TK
MODULE - VI
Education System in India: Education in ancient, medieval and modern India, aims of education, subjects, languages, Science and Scientists of Ancient India, Science and Scientists of Medieval India, Scientists of Modern India.

Text books:

1. Traditional Knowledge System in India, by Amit Jha, 2009.
2. Narain, “Examinations in ancient India”, Arya Book Depot, 1993
3. Satya Prakash, “Founders of Sciences in Ancient India”, Vijay Kumar Publisher, 1989
4. M. Hiriyanna, “Essentials of Indian Philosophy”, Motilal Banarsidass Publishers, ISBN 13: 978- 8120810990, 2014

Reference Books:

5. "Knowledge Traditions and Practices of India" Kapil Kapoor1, Michel Danino2.
6. “Science in Samskrit”, Samskrita Bharti Publisher, ISBN 13: 978-8187276333, 2007
7. Kapil Kapoor, “Text and Interpretation: The India Tradition”, ISBN: 81246033375, 2005
8. “Science in Samskrit”, Samskrita Bharti Publisher, ISBN 13: 978-8187276333, 2007
9. NCERT, “Position paper on Arts, Music, Dance and Theatre”, ISBN 81-7450 494-X, 200
10. Narain, “Examinations in ancient India”, Arya Book Depot, 1993
11. Satya Prakash, “Founders of Sciences in Ancient India”, Vijay Kumar Publisher, 1989
12. M. Hiriyanna, “Essentials of Indian Philosophy”, Motilal Banarsidass Publishers, ISBN 13: 978- 8120810990, 201

SEMESTER – V

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5C1	URBAN DESIGN AND CONSERVATION	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To define basic principles of urban design and conversation.	1, 3	1, 2
CO2	To know the elements of urban design & evaluate the built environment in an urban setting.	3, 4, 8	1, 5
CO3	To understand the urban forms and scales of urban design.	1, 4, 7, 8	2, 3
CO4	To evaluate and assess spatial issues pertaining to landscape planning.	4, 5, 8, 9	4, 5
CO5	To explain the salient features of different statutory provisions for conservation and redevelopment.	1, 7, 8, 11	2, 4, 5

MODULE - I

Introduction to Urban Design - Theory Relationship between architecture, urban design and planning; city as a three dimensional entity; study of volumes and open spaces at all levels;

Historic Review of Urban Design- A brief historic review of the development of the urban design discipline and principles.

MODULE - II

Elements of Urban Design - Urban form as determined by inter play of masses, voids, building typology; scale, harmony, symmetry, color, texture, light and shade, dominance, height, urban signage and graphics; organization of spaces and their articulation in the form of squares, streets, vistas and focal points, image of the city and its components such as edges, paths, landmarks, street features, skyline, etc; urban transportation.

MODULE - III

Physical and Non Physical Determinants of Urban Forms- Activity and the morphology of places; form size and structure of cities and the related geometry co related with their determinants; case studies of urban design characteristics of cities in India and abroad; related issues for public intervention.

MODULE - IV

Urban Landscape- Characteristics and components of open space, patterns in towns and cities (traditional and contemporary) basic types: streets, squares, Ghats and maiden, plazas, different concepts of gardens with examples, hierarchy of open spaces at various planning level, public parks at district, local and

Neighborhood levels; national parks, landscape design related to land use, circulation networks and activity; street furniture and vegetation as a component of urban landscape.
MODULE – V (CO 5)
Control of Urban Design- Urban design and its control, control of visual pollution; agencies responsible for better design, their role and limitations. **Basic Principles of Conservation-** Overview and introduction of the basic concepts of conservation values, attitudes and principles for judging the conservation importance of sites, areas and related typology; scope and basic techniques of urban conservation.
MODULE – VI (CO 5)
Aspects of Urban Conservation- Legal and administrative aspects archaeological acts/charters pertaining to conservation, development and conservation; Case studies of proposals for urban conservation of sites/areas in India and abroad.

Text books/ Reference Books:

1. Edmond Beckons: Design of cities
2. Rob Krier: Urban space
3. Kevin Lynch: Image of City
4. Geoffery Broadbent: Emerging Concepts in Urban Space Design
5. Planning for Conservation
6. Bernard Fielden: Technical Manual for Conservation of Buildings
7. A.K. Singh: Origin and Growth of Town

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5C2	PLANNING & MANAGEMENT FOR DISASTERS	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To define disaster and its types & the distinction amongst disaster risk, vulnerability and hazard.	1, 2, 3	1, 2
CO2	To underscore the role of land use planning and building bye laws in disaster risk management	1, 4, 7	2, 3
CO3	To explain the salient features of existing statutes and policy on disaster management	1, 4, 8	2, 3
CO4	To explain the institutional mechanisms for disaster risk management and understand the role of people in disaster management	7, 8, 12	2, 3,4
CO5	To appreciate different disaster risk mitigation and management practices.	3, 4, 8	4, 5
CO6	To explain the objectives of different types of mapping in disaster risk management	5, 6, 8	4, 5, 6

MODULE - I

Basic concepts, classification and definitions- Hazard, Risk, Vulnerability, Disaster and Disaster Management. Types of disasters; Hazard and vulnerability profile of India.

Disaster Risk, Vulnerability and Capacity Assessment (concepts and methodology)- Relevance of Disaster Risk, Vulnerability & Capacity Assessment in Planning, Concept of Hazard Assessment, Vulnerability Assessment, Risk Assessment and Capacity Assessment, Hazard Identification and Analysis.

MODULE - II

Disaster Management - Four elements of comprehensive disaster management (Preparedness, Response, Recovery and Mitigation),

Disaster Mitigation- Concept of Mitigation and its importance (Structural and non-structural mitigation measures, identification of mitigation measures relating to different types of hazards and implementing strategies).

Land use Regulations for Planning- Land-use Management tools for disaster risk reduction. (Building codes, GDCR, zoning ordinances, land acquisition, transfer of development rights, recovery and reconstruction plan). : land use planning, building bye laws and disaster compliant building design

MODULE - III

Introduction to various Hazard Safety Legislations- National Disaster Management Act, Various state Disaster Management Acts (Gujarat, Uttar Pradesh, Uttaranchal, Bihar) and state disaster management policies (eg: Orissa, Gujarat, Uttaranchal, Tamil Nadu, Delhi, Uttar Pradesh).

Relevance of Rehabilitation and Resettlement Policy in recovery and reconstruction phase of disaster management- planning process. Coastal zoning regulation notification for construction and reconstruction phase in the coastal areas.

MODULE - IV

Understanding the role of various stakeholders and Community based Disaster Risk Management Role of Government/Civil Society/ International Organizations/ Communities And Approaches to Community Based Disaster Risk Management and Planning. (Local coping mechanisms, Importance of mock drills and onsite volunteer management in Community level disaster preparedness activities).

MODULE - V

Disaster Risk Mitigation : Disaster risk mitigation and management practices: for cyclones, floods, earthquakes, landslides etc.; Disaster mitigation and management practices: for industrial, chemical and biological disasters; Disaster risk mitigation and management practices

Post Disaster Management and Cross Cutting Issues- Rehabilitation and reconstruction of disaster hit areas, natural resource management for disaster prone areas.

MODULE - VI

Disaster Preparedness: Forecasting and early warning systems for various types of disasters; Communication and information technology in disaster management; Disaster education and awareness; Documentation of disasters; Mapping in disaster management : resource map, social map, vulnerability map and opportunity map

Text books/ Reference Books:

1. B K Prasad: Sustainable Rural Development for disaster mitigation
2. Disaster Recovery, Brenda D. Phillips, CRC Press
3. Cities, Disaster Risk and Adaptation, C. Wamsler, Routledge, 2014
4. National Disaster Management Plan, Govt. of India, 2016
5. National Policy on Disaster Management, Govt. of India, 2009
6. Disaster Management, Vinod K. Sharma (Ed.), Scientific International, New Delhi

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5C3	DEVELOPMENT PLANNING	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the Linkages between Development and Economics	1, 4	1, 2
CO2	To know the conventional theories of Development	1, 8	1, 2
CO3	To know the models of development in planning and introduction to 5 year plans.	1, 3, 4	1, 2, 4
CO4	To understand the difficulties and practical hurdles in development planning.	3, 4	3, 4
CO5	To learn regional development models and theories.	7, 8, 9	3, 4
CO6	Understanding the impact of globalization and liberation on planning and development.	7, 8, 11	4, 5

MODULE - I

Introduction: Major concepts in political economy and types of economies capitalism, socialism, communism, etc.

Developed, Developing and Under Developed Economics: Concepts and definition of development. Indicators of development. Factors influencing development. Efficiency versus equality. Broad introduction to main stream, classical and market theories of development and under development. Characteristics, indicators and phases of development; obstacles to development; business cycles; levels of development; series of development and planning relevance of economic development in physical planning. Regional disparities in development. Surplus generation of primary sector and its influence on development. Investment, public policy and development. Development as defined and implied in Indian planning and related development programmes. Development planning as distinct from other types of planning.

MODULE - II

Classical Theories of Development: Introduction to Adam Smith's theory, specialization and division of labour; Ricardian theory of rent; and value and quasi rent.

Modern Theories of Development: Keynesian revolution innovation theory, backwash and spread effect; critical minimum effort and stages of economic growth.

MODULE - III

Models of Development: Balanced vs. unbalanced dualistic approach in development; derived development; Lewis model; Harrod Domar model; Sean's model, etc.; development models in Indian planning first to tenth five year plan; effectiveness of the models in Indian planning. Theories of

Development (Trickle down, Bottoms up) Settlements systems / secondary cities. Sectoral shifts- spatial implications of economic change.
MODULE - IV
Issues in Growth and Development: Conditions for economic growth. Planning in India goals and objectives; targets and achievements impact, types of planning regional disparities, population and poverty, unemployment, savings, balance of trade and payments, resource transfers and regional development, sectional priorities and development; structural reform and its impact on growth; financing five year plans. Introduction to Marxist theories of development.
MODULE - V
Regional Development Theories: Export base theory, Neo classical theory, Cumulative causative theory of Myrdal Kaldor, Econometric model, Input output model, Multisector development planning model. Location theory agglomeration economics – transport sector -growth poles cities and regional growth. Overview of regional development in India through history.
MODULE - VI
Liberalization and Globalization: Aspects of structural adjustments in economic policies; impacts of free trade, foreign direct investment, capital flows, migration, technology transfer on socioeconomic factors and development in the 'third world' (specially in India); concepts of global cities, hierarchy of networked global cities.

Text books/ Reference Books:

1. S.L.Goel& S.S. Dhaliwal: Urban Development & Management
2. Shri Bhagwan Dahiya: Theoretical Foundations of Development Planning.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5C4	PLANNING THEORY AND URBAN POLICY	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To Introduce basic, traditional, theoretical and policy planning theories	1, 3	1, 2
CO2	To explain methods and features of advocacy, equity and participative planning	3, 4, 6, 12	2, 3
CO3	To explain methods of evaluation of development plans and implementation strategies	5, 6, 7, 8	3, 4, 5
CO4	To explain various methods of participation and its relevance in planning	7, 8	2, 3
CO5	To Explain the policy preparation and implementation process and Appreciate the relevance of policy in urban development	3, 4, 8	2, 4, 5
CO6	To Understand methods of policy outcome analysis	4, 8, 11	4, 5, 6

MODULE – I **PLANNING THEORY**

Introduction to planning theory - Understanding the concept of theory in general; differentiating between theories of planning and theories in planning and theories about planning; significance of planning theory; definitions of planning and their critical evaluation; understanding a paradigm and its stages of development.

Understanding rationality in planning in general; introduction to categories of rationality and associated paradigms; introduction to synoptic, incremental, trans active, advocacy and radical theories of planning, relating them with purpose and process of planning; reasoning and its various forms in planning -space, place and location.

MODULE - II

Process of planning: instrumentality and communicative- Instrumental rationality and its associated schools of planning processes; means-ends planning; systems theory of planning; the emergence of communicative rationality and its associated schools of planning processes; participatory planning and action planning; deductive and inductive methods; prescriptive vs inclusive planning

MODULE - III

Theories of urban growth, sustainability- Forms of cities in the developed and developing world; compact cities, global cities, hierarchy in global cities; agglomerations of scale, economies of scale and urban agglomeration; location theories, concentric zone theory, bid rent theory, sector theory; Cross Border Regions (CBRs).

Sustainable urban development – evolution of the concept, components and processes; weak and strong sustainability; millennium development goals; equity in planning; globalization and cities; networked cities.

Systems approach to planning and other alternatives- Understanding systems theory in general; main characteristics of Rational Comprehensive Planning; components of systems based planning; understanding systematic change; key disadvantages with systems view of planning.

Introduction to alternative development paradigms; incremental planning and disjointed incrementalism; trans active planning and mixed scanning; main components and features of advocacy planning; ladders of citizens' participation and the art of muddling through; radical planning approaches – equity, social mobilization and social change.

MODULE - IV

Participatory planning- Public interest and its forms, history and significance of public participation; the role of market in planning; the hurdles in systems theory of planning; conditions of effective communication and discourse for planning; public participation and empowerment; fundamentals of communicative rationality in planning; models of communicative and collaborative planning.

Uncertainty in planning; New Public Management (NPM) theories- Matrix of uncertainty; agreed goals and known tools; disagreed goals and unknown tools; leapfrogged decision making – premature programming and premature consensus; implications of uncertainty; risk reduction; role of planners.

Role of market in development; economic planning vs physical planning; models of NPM; efficiency and efficacy in planning, transparency, accountability, collaboration and innovation.

MODULE – V **URBAN POLICY**

Introduction to urban policy analysis- Tools for issue and policy analysis and alternate models of decision making in urban management. The four overlapping fields of urban policy analysis: Political leadership; leaders and political cultures, elite theories, group theory and pluralism, neo-Marxist work, network analysis, coalition theory, NGOs and civil society. Theory of change, Adaptive leadership, negotiation and conflict resolution. Political decision making citizen preferences, participation, and policy options; populist spatial theories, budget snapshots, policy responsiveness bureaucratic process and service delivery - bureaucratic theories; incrementalism, dynamic bureau head, professionalism and reform, population and economic location; small firms, impacts of public policy

MODULE - VI

Policies, institutions and change- The relationship between capitalism, democracy, and civil society; effecting community change through leadership intervention- raising consciousness or building support around an issue, implementing a program, or any initiative that requires the mobilization of multiple stakeholders, advocacy methods, leverage points, and resources for change. The nature of power in its various forms (electoral power, issue framing, financial, citizen mobilization, public opinion) Case studies exploring how power and resources can be acquired, evaluated, mobilized, and deployed in the service of promoting a policy agenda, leverage points for achieving social change, the studies should promote familiarity with legislative processes, the budget cycle, the electoral arena, the regulatory system, public

interest law, labour relations, procurement, and the various paths to influencing public opinion and decision makers. Comprehensive strategy for conducting a campaign for issue advocacy or political change.

Text books/ Reference Books:

1. Modern growth theory by Dipankar Dasgupa
2. George Chadwick, A System view of Planning
3. M.Fagance, Citizen participation in Planning
4. Andreas Faluda, Reader in Planning Theory
5. Andreas Faluda, Planning Theory
6. Litchfield, Evaluation Planning Process
7. Ed.ElizabathA.Strom&John H.Mollenkopf. The Urban Politics Reader
8. Ed.Devid.T.Beito and others ,The voluntary City: Markets Community and Urban Planning

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5S1	RURAL AREA PLANNING STUDIO	0	10	0	10	100	100	200

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To learn different features of a rural settlement and understand rural area planning.	1, 2	1, 2
CO2	To know the purpose of surveys and type surveys involved in the rural area planning.	3, 4, 5	3, 4
CO3	To analyse the economic profile of a rural areas by doing surveys (primary & Secondary)	3, 4, 7	4, 5
CO4	To plan for rural infrastructures and propose Rural area development plan	1, 7, 9, 10, 11	4, 5, 6

MODULE - I

Understanding Rural Area Planning- Rural Area Planning: definition, significance, scope, delineation of a rural area, understanding the functional base and various land uses in a rural area.

Area Selection- The academic objective of this exercise is to get a first-hand experience about the lifestyle of the rural people. The students are required to undertake the study of a cluster of village, village with a population of around 10,000s and conduct a detailed primary survey. The villages selected should be outside the zone of influence of any metropolis.

MODULE - II

Primary Survey- The primary survey is also expected to give them an exposure to research methodology and techniques of data collection. The students will have to visit and stay at the villages for a few days to conduct the survey. Primary survey shall be conducted for adequate households for detailed study.

Demographic and Socio-Economic Survey- Household/Demographic survey: sex ratio, literacy, dependency ratio, occupational pattern.

MODULE – III

Secondary Survey- As part of the secondary survey, the Provision of Urban Amenities in Rural Areas (PURA) Regulations, a PPP Scheme of the Ministry of Rural Development (Govt. of India) under the XII Five Year Plan are also required to be studied. Village level information shall be collected from the Panchayat Office, Census handbook and other secondary sources.

Documentation- Detail primary survey and secondary survey results and questionnaire format along with a

Report.
MODULE - IV
Analysis- The students are required to study various issues like demography, employment and asset structure, agriculture and allied activities, social and cultural issues, livelihood patterns, community development and participation, institutions, government programmes, village level amenities and linkage, energy utilization pattern, resource profile and natural resources planning; and recent changes and development in the villages and the surrounding areas.
MODULE - V
SWOT analysis of available resources and funds. Plan preparation: The output of the studio exercise shall be in the form of preparation of a strategy plan for the overall short and long-term development of the village.

Text Books:

1. Local Area Planning in India, Rishi Dev, Create Space Independent Publishing Platform, 2014
2. Participatory Planning in Plan Preparation, Shashikant Nishant Sharma, SureShot POST Online Publishing, 2013
3. GIS for Local Area Planning, Volume 1, Tony Winata and Hiran D. Dias, Asian Institute of Technology, 1991 Local Area Planning in India, Rishi Dev, Create Space Independent Publishing Platform, 2014
4. Participatory Planning in Plan Preparation, Shashikant Nishant Sharma, SureShot POST Online Publishing, 2013
5. GIS for Local Area Planning, Volume 1, Tony Winata and Hiran D. Dias, Asian Institute of Technology, 1991

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5W1	PLANNING WORKSHOP- I (TRAFFIC STUDIES)	1	0	2	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To introduce traffic studies & planning.	1, 2, 5	1, 2
CO2	To appreciate the functional and geometric classification of roads and their cross sectional elements	4, 5	2, 3
CO3	To carry out traffic volume count survey, origin destination survey and document traffic and transportation related issues	3, 4, 8	4, 5, 6
CO4	To prepare a circulation plan and traffic management plan	3, 4, 11, 7, 8	5, 6

MODULE – I

Introduction to Traffic Studies- The course is designed to expose students to hands - on, primary involvement with those typical problems/projects existing within a neighborhood/area level that require interaction with experts and implementing authorities/line departments in a focused way.

Importance of Traffic studies and planning- various interactive and practical exercises on traffic junctions, rotary junctions, landscape developments, architectural & planning documentations, signage design within a neighborhood/ area level.

MODULE - II

Classification of Roads- Functional and geometric classification of roads, characteristics of urban and rural roads and their cross sections. **Road Geometrics-** Roads: Geometrics and components, rotaries and signalized intersections, road inventories.

MODULE - III

Traffic Surveys- Following surveys related to Transportation aspects should be conducted: Traffic volume survey, speed and delay studies, parking studies, pedestrian studies.

Identification of Transportation problems and issues- Identification of traffic problems and issues based on thrust areas and zones.

MODULE - IV

Traffic Circulation Plan-Preparation of area traffic circulation plan by studying the existing land use, existing circulation pattern, level of service and other criteria if any.

Suggesting effective alternatives and low cost traffic management measures.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5E1	ELECTIVE 1 : I. REAL ESTATE DEVELOPMENT	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To define land, land economics and its scope	1, 2	1, 2
CO2	To know about land & property valuations	1, 12	1, 3
CO3	To understand locational and cost benefit analysis.	1, 4, 5	2, 4
CO4	To study some case studies of real estate	4, 6, 7	3, 4
CO5	To Achieve Knowledge Social infrastructure planning and urban infrastructure	3, 4, 8, 11	3, 4, 5
CO6	To Explain the salient features of different policies and programmes on real estate development	7, 8, 9, 10	1, 4, 5, 6

MODULE - I

Introduction to Land- Economic concepts of land, objectives, and scope of land economics;

Land as Resource- Economic rent, land use, land values, impact of economic forces on urban structure and land use patterns, examples of bid rent theory, regulatory frame works determining land values and land uses.

MODULE - II

Land and Spatial Planning- relevance for spatial planning, economic principles of land uses; economic rent, land use and land values, market mechanism and land use pattern.

Development of Land and Real Property- Process, cost of development, source of finance, and financial calculation for real estate developer.

MODULE - III

Real Property Markets- Heterogeneity and imperfections, valuation of real property – principles and practices; private ownership and social control of land; disposal of land; land development charges and betterment levy; land use restrictions, compensation and requisition taxation of capital gain on land versus public ownerships, economic aspects of land policies at various levels of decision making.

MODULE - IV

Factors Influencing Locational Decisions- Analysis of location of specific uses like residential, industrial,

commercial and institutional in the light of location theories in intra-regional and inter-regional context;

Cost Benefit Analysis- Techniques of cost benefit analysis of urban development programme.

MODULE - V

Case studies- Case studies of real estate development in public, private, partnership sectors, Real estate as facilitator of development; Development of real estate as a tool for controlling land and property prices; Transaction and renting of real estate, Lease deeds/ sale deeds, sale documents, registration; Mortgage and pledging.

MODULE - VI

Policies, Programmes and Statutory Interventions : Real estate development: regulatory provisions, Government policies and programmes; Land development charges and betterment levy; Land use restrictions and compensations; Urban land management and marketing techniques: bidding, reserve price, land reservation, land price subsidies

Text books/ Reference Books:

1. Irwin McGraw Hill: Urban Economics
2. Mill & Hamilton: Urban Economics
3. Evans: Urban Economics
4. B.L. Mathur: Economic Planning & Development Theory & Practice
5. R.L. Nelson: Real Estate & City Planning

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5E2	ELECTIVE 1: II. AFFORDABLE HOUSING	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To Understand the Basic Definitions, Concepts related to Affordable Housing	1, 2, 3	1, 3
CO2	To Analyse housing policies and housing finance, and govt role in affordable housing.	3, 4, 5, 7	1, 4
CO3	To explain public housing policies by govt and issues in housing.	4, 6, 7	4, 5
CO4	To understand the key objectives of using PPP in housing	2, 4, 11	3, 4
CO5	Case study to understand developments in Affordable housing	4, 5, 11	3, 4, 5
CO6	To analyse various housing, slum policies in India	3, 4, 7, 8, 11, 12	4, 5, 6

MODULE - I

Introduction to Affordable Housing- Urbanization & housing shortage in India, Introduction and definition of "Affordable Housing" in India, difference between affordable and low income housing, income levels and housing affordability ,

Socio-economic Implications of Affordable Housing- Socio – economic implications of affordable housing, Demand drivers and supply constraints for affordable housing in India

MODULE - II

Policy framework & regulations for affordable housing - Central level & state level schemes, state sponsored initiatives, Review of affordable housing Programs of Government,

Government's Role in Affordable Housing- Government's role in determining what is "affordable", Advantages & disadvantages of government regulation in affordable housing, Pros and cons of government-built affordable housing vs. privately developed multi-family housing.

MODULE - III

Public Housing- Discussion of government as developer (public housing), as facilitator, and as lender to public housing, Public approaches towards affordable housing globally - Strategies and policies, subsidies, incentives and administrative streamlining.

Issues in development of affordable housing- Lack of availability of land, lack of access to home finance, rising cost of construction.

MODULE - IV

Role of PPP in Affordable Housing - Effective use of available Government land, Land Banking, FSI, Cross Subsidization, Redevelopment / Rehabilitation, housing finance companies, entry of private players in affordable housing segment – push & pull factors, institutional approach to affordable housing.

MODULE - V

Affordable housing - a case study- Project level discussion - how does an affordable housing development begin? Basic steps and feasibility analysis, beginning with finding land, developing a concept, through application for funds and identification of financial partners.

MODULE - VI

Housing Policy Analyses: Evaluation of urban and rural housing policy and programmes in India; Slum improvement programmes; Comparative policy analysis

Affordable Housing; Housing for the low income groups – slums and squatter settlements, investment in housing in public and private sectors; Cooperative housing, objectives and principles, management and financing of housing projects; Acts, policies and programmes; Comparative policy analysis.

Text books/ Reference Books:

1. Housing and Urbanization: A Study of India, Cedric Pugh, Sage, 1990
2. Community Participation Methods in Design and Planning, Sanoff, Henry, John Wiley & Sons
3. The Affordable Housing Reader, Rosie Tighe and Elizabeth Mueller, Routledge, 2012
4. Housing : Changing Needs and New Directions, V. Gandotra and Others, Authors Press, 2009
5. Housing, Markets and Policy, Peter Malpass and Rob Rowlands, Routledge, 2010
6. Housing Markets and Planning Policy, Jones Colin, Wiley-Blackwell, 2009
7. Housing Laws in India- Problems and Remedies, P.K. Sarkar, Eastern Law House Private Ltd.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
V	PL21B5E3	ELECTIVE 1: III. URBAN SANITATION	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To introduce urban sanitation planning and its impacts	1, 2, 3, 4, 8	1, 2
CO2	To explain the various aspects of urban sanitation practices	1, 2, 3	1, 3
CO3	To know about practices of sanitation in cities and its challenges (Case studies)	1, 2, 3	3, 4
CO4	Distinguish the different sanitation planning approaches from city to neighborhood scale and understand why an enabling environment is key	4, 8, 11	3, 4
CO5	To study sanitation systems and technologies in urban areas.	2, 3, 4, 8, 11	3, 4, 5
CO6	To compare and study case studies of urban sanitation systems and rural sanitation systems.	4, 8, 9, 11	5, 6

MODULE - I

Urban Sanitation, Urban Sanitation Challenges, Status of urban sanitation in Indian Cities, Impacts of Poor Sanitation.

Urban Sanitation Planning and Development, Guiding principles for better sanitation planning, City Sanitation Plans

MODULE - II

Sanitation Practices: technological, environmental, behavioral and cultural aspects to sanitation practices.

National, State and City Level Support for Sanitation, NGO and CBO Roles in Service Delivery, Swatch Bharat Mission for Sanitation.

Sanitary sewer system network and layout, procedure of planning, sewer appurtenances.

MODULE - III

Sanitation in Developing Cities, Sustainability Criteria for Urban Sanitation, Planning of Sustainable Sanitation for Cities, Sanitation and Sustainable Urban Development.

Innovations in Sanitation Planning, Technology Options for Urban Sanitation in India.

Case study of best practices: case study of innovative approaches for sewage disposal in cities.
MODULE - IV
Planning & design of sanitation systems and technology : an introduction about integrated sanitation planning, dealing with citywide planning as well as with planning for specific contexts such as informal settlements. Urban environmental sanitation
MODULE - V
Urban Sanitation Tools- City Sanitation Plans (CSP): Blanket term for a range of approaches, involving strategic planning processes for citywide sanitation service development. They draw on fundamentals of earlier planning approaches and take a holistic approach to planning, addressing both technical (e.g. services) and non-technical (e.g. institutional capacity) aspects of urban sanitation. They provide in-depth guidelines and strategies (developed by several supporting organization, e.g. WSP's City-Wide Sanitation Strategy).
MODULE - VI
Urban sanitation case studies India, rural sanitation, slums, sanitation chain systems in cities

Text books/ Reference Books:

1. Globalization, Urban Reforms & Metropolitan Response: India, Darshini Mahadevia
2. Housing and Urbanization: A Study of India, Cedric Pugh, SAGE Publications, 1990
3. Affordable Housing in the Urban Global South: Seeking Sustainable Solutions, Jan Bredenoord, Paul Van Lindert, Peer Smets. The Affordable Housing Reader edited by Rosie Tighe, Elizabeth Mueller

Open Elective

Note: Subjects can be chosen across the Departments of the university. The subject lists will be available with the Departments from where the students can choose the Elective.

SEMESTER – VI

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6C1	REGIONAL PLANNING	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To identify a region from given characteristics.	1, 4	1, 2
CO2	To know the scale economies and externalities of a region	2, 4	3, 4
CO3	To trace down the regional growth path through models	2, 3, 4	4, 5
CO4	To refer to the powers of DPC / MPC across various regional planning functions and regional development process in India	4, 8, 9	2, 4
CO5	To study various region development plans (Case studies)	4, 7, 8, 11	2, 3
CO6	To measure regional inter regional disparity	4, 8, 11	4, 5

MODULE - I

Introduction- Definition, scope and content of Regional Planning, need for Regional planning and basis, concepts of spatial organization and region; The nature of a region – functional regions and formal regions, regional specialization, development and growth of regions; regionalization - inter-regional trade and factor movements; settlements, pattern, hierarchy; rural and urban, role of cities in regional development.

MODULE - II

Regional Economics- Individual location decisions, transfer costs, locational patterns, markets, existence, conditions and size, market locations and regional development – inter and intra-regional economic analysis.

Regional Analysis- Techniques of delineation of regions; Centro graphic analysis; input-output analysis – income and expenditure multipliers; inter and intra-regional economic analysis - multivariate analysis of industrial groupings – principal components and factor analysis – sectoral shift analysis – rank size rule. Disparities – use of development indicators, composite development index

MODULE - III

Regions in India- Types of regions, methods and purpose of regionalization – Delineation of regions in India; Population growth, distribution, resource base, migration in India, causes; Urbanization, spatial variations – reasons, factors and implications in planning, IDSMT and metro regional approaches.

Regional Growth Processes- Some approaches of Rostow, Hirschman, Myrdal, Concept of core and periphery, Growth centres, growth poles, service centre and agropolitan district and their approaches in India and other countries; Spatial growth process, theories of Christaller, Losch – Rank size rule, primary spatial innovation, diffusion etc.

MODULE – IV

Regional Planning and Development- Regional development; balanced and unbalanced development; under development; models of regional development; regional planning processes; identification of plan objectives; collection, classification and analysis of data; norms and standards for regional planning; Planning Commission's Manual of Integrated District Planning, role of district planning committees (DPC) and metropolitan planning committees (MPC); settlement pattern, population and resource allocation/ distribution; infrastructure; environmental concerns and protection; alternative strategies; implementation and financing strategies. Regional basis of decentralized and multi-level planning in India, National level, state level, district planning, block level planning.

MODULE – V

Case studies- Case studies of district plans in India (Kollam, Chandrapur, etc.); Case studies of Damodar valley Corporation, National Capital Region, Narmada Command Area Development Plan, Mumbai Metropolitan Region Development Plan, etc.

MODULE – VI

Reducing disparities and optimizing resources- Disparities and imbalances in India and its impact; Sectoral basis- integrated rural energy planning, watershed management with respect to common property resources, community based resource management, traditional knowledge and institutional systems; Backward area development.

Text books/ Reference Books:

1. Regional planning for urban spaces AD Walk Urban and Regional planning reader Birch E, Glasso
2. Housing: the essential foundation Paul and Balchin New urban housing Hillery French
3. Regional Planning, John Glasson, Taylor and Francis, UK
4. Regional Planning in India, Mahesh Chand and V.K. Puri, Allied Publisher Pvt. LtD, New Delhi

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6C2	PROJECT FORMULATION, APPRAISAL & MANAGEMENT	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To lists the steps in project formulation & Appraisal	1, 3	1, 2
CO2	To underline the importance of project management & methods like CPM, PERT	1, 3, 4	3, 4
CO3	To explain the process and constraint in formulating a project and strategies.	4, 11	4, 5
CO4	To carry out financial appraisal of a project through various methods	4, 11	3, 4, 5
CO5	To detailing out the project planning process and estimate breakeven point in project	3, 4, 9, 11	4, 5, 6
CO6	To work on a live project and to do evaluation and monitoring of a project	3, 4, 9, 11	4, 5, 6

MODULE - I

Introduction to Project Formulation & Appraisal

The Concept of projects, Importance of project formulation, project identification and formulation, detailed project report, and feasibility studies; techniques of financial appraisal, payback period, IRR, DCF, NPV, CBR. Project formulation; definition, objectives; Stages of project formulation their significance; input analysis, financial cost-benefit analysis, social-cost benefit analysis; Project appraisal and report.

MODULE - II

Introduction to Project Management: Definitions and meanings; importance of project management, Reasons or shortfall in its performance, scientific management, life cycle of project.

Project Management: Planning and control, Human aspects, Development of project network, Critical path, PERT & CPM, Project organization, Contracting, Procurement and Recruitment budget and fund flow statement, stabilization and finish.

Organization of project; matrix organization, task forces, project teams; monitor and control of project.

MODULE - III

Project Management Strategies: Tools and Techniques for project management, classical persuasive and non-persuasive strategies and techniques. New techniques of management by objectives (MBO). Integrated reporting system, flow diagrams, bar, charts, milestone, charts, CPM and PERT, LOB.

Techniques of monitoring of development works standard oriented costs control, turnkey system, Vertical

Production Method, inventory cost control techniques, and unified status, index techniques. Techno economic analysis of the project
MODULE - IV
Techniques of Project Appraisal Technical/Financial/Organizational criteria, Appraisal Criteria (NPV/B/C. Ratio/ I.R.R. Financial Analysis Capital Costs, Financing plans, Operation costs, Projections of costs and revenues, Financial viability, Debt servicing, Tariff and revenues, Income and expenditure statements, Project balance sheets, Rate of returns. Social Cost Benefits Analysis Rationale for SCBA, UNIDO Approach.
MODULE - V
Project Planning: Project planning process; Planning for project work (work breakdown structure); Planning for manpower and organization; Planning for information system; Breakeven analysis; Cost performance / Schedule performance / Project performance index; Cost overrun; Project budgeting
MODULE - VI
Case Studies Case studies in Urban and Regional Projects, Preparation of project appraisal &timeline for a project

Text books/ Reference Books:

1. Dr. B.C. Punmia, K.K. Khadelwal: Laxmi Publications (P) Ltd: Project Planning and
2. Control with PERT & CPML.S. Srinath: PERT and CPM Principles and Applications,
3. Affiliated East-West Press Pvt. Ltd. A.N. Sachithanandan: Reading Material on
4. Project Formulation and Appraisal, Institute of Town Planners, India, New Delhi.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6C3	PLANNING LEGISLATION	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To distinguish between ordinance and Act, bill and Act	1, 2, 3, 8	1, 2
CO2	To know the constitutional provision to urban governance and planning	1, 2, 8	2, 3
CO3	To understand the legal framework, laws, acts and regulations in urban planning & development	1, 2, 8	2, 4, 5
CO4	To refer to the legislative provisions for different aspects of urban planning & land acquisition acts other case studies in planning legislation	3, 7, 8	4, 5
CO5	To understand some issues by case studies in spatial planning	3, 4, 7	3, 4
CO6	To Know the statutory legality of planning legislations & its hierarchy of organization in plan implementations	3, 8, 10	3, 4, 5

MODULE - I

Concept of Law: Sources of law (custom, legislation and precedent); meaning of the term of law, legislation, ordinance, bill, act, regulations and bye-laws, Doctrine of separation of powers; significance of law and its relationship to planning; benefits of statutory backing for planning schemes; eminent domain and police powers.

MODULE - II

Indian Constitution: Concepts and contents of Indian Constitution; provisions regarding property rights; evolution of planning legislation and overview of legal tools connected with urban planning and development; Legislative competence of State & Central Government to enact town planning legislation; model town planning laws (Model Urban & Regional Planning Acts, Model Municipal Corporation Act, UDPFI, Model Municipal Law etc.).

MODULE - III

Laws, Acts and Regulations for Planning and Development

Introduction, scope and relevance of various laws and acts relevant to planning; Model Town and Country Planning Acts, Development Authorities Act, 73rd and 74th Constitution (Amendment) Acts (confirming legislation of various states, hurdles to implementation; Municipal Acts, Environmental and Pollution control Acts, Rent control legislation, housing co-operative related legislation, slum related legislation, legislation related to Conservation & Restoration, Repeal of Urban Land Ceiling Act (status in various states) etc., Case studies.

MODULE - IV

Objectives, contents, procedures for preparation and implementation of master plans, ILUPs, town planning

Schemes & Regional Plans.

Concept of arbitration, betterment levy, development changes & Public Participation in statutory planning process, concept of alternatives to master plan, regulations, transfer of development rights, other legal tools.

MODULE - V

Land Acquisition Act: Introduction to Land Acquisition Act, 1984, Historical background, need, advantages, limitations; Relevance in today's context;

Case studies highlighting nature of contention, parties in dispute and the decisions in specific planning dispute.

MODULE - VI

Organizations for plan Implementation

Special purpose bodies for plan implementation such urban/ metropolitan development authorities, improvements trusts, water and sewerage boards, housing boards, slum improvement/clearance boards, transport undertakings; regional development boards, implementation agencies at state & district level.

Text books/ Reference Books:

1. ITPI Reader Volume
2. UDPFI Guidelines
3. Master Plan Approach: Efficacy & Alternatives

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6C4	ENVIRONMENTAL PLANNING AND MANAGEMENT	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To educate students in environment and man – environment inter-relationships	1, 3, 8	1, 2
CO2	To know the utilization and conservation of resources. & integrated resource planning.	1, 2, 8	1, 2, 4
CO3	To critically and systematically integrate knowledge and perspectives and to analyse, assess and deal with complex biological problems in the eco system.	5, 6, 8	3, 4, 5
CO4	To know the environmental statues in Indian context.	4, 8, 9, 12	2, 5
CO5	To learn sustainable development and impact of environmental degradation on the eco systems	4, 8, 11, 12	2, 3, 6
CO6	To appreciate the impact of environmental degradation on the eco system	3, 4, 8, 11	4, 5, 6

MODULE – I

Human Population and the Environment- Population growth, variation among nations, Population explosion – Family Welfare Programme, Environment and human health, Human Rights, Value Education, HIV/ AIDS, Women and Child Welfare, Role of Information Technology in Environment and human health- Case Studies.

MODULE - II

Resources Planning - Definition of Resource, Resource characteristics –key factor links with the settlement systems at broader perspective; settlement dependencies on resources;

Conservation- Concepts, theories related to conservation & management of resources, resource conservation in settlement planning, concept of common pool resources & their management, Role of an individual in conservation of natural resources, Equitable use of resources for sustainable lifestyles. Data needs and type of analysis required to evolve ecological parameters for urban development.

MODULE - III

Biodiversity Conservation and Management- Concept and definitions of Biodiversity - genetic, species and ecosystem diversity. Significance of systems diversity; Bio-geographical classification of India, Valuing biodiversity- consumptive use, productive use, social, ethical, aesthetic and option values;

Biodiversity at global, National and local levels, Significance of Urban Biodiversity in planning process, Hot-spots of biodiversity, Issues in Biodiversity management, Threats to biodiversity : habitat loss, poaching of wildlife, man wildlife conflicts, Endangered and endemic species of India, JFM & biodiversity conservation in tribal areas, In-situ and Ex-situ conservation of biodiversity; Broad views of various national and international policies and instruments of biodiversity, Biodiversity Convention, Biodiversity Act etc.

MODULE - IV

Environmental Policies and Awareness- Environment Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness. Global and national policies on environment; Conventions, treaties and protocols on environment, RAMSAR convention, Convention on Climate Change, Rio Earth Summit, Stockholm conference, Kyoto Protocol, etc.; Environmental awareness and movements in India; Agencies involved in environment protection, Public participation, case studies.

MODULE – V

Sustainable Development & Environmental Economics- Concept and principles of sustainability, Sustainability versus Development, Role of local knowledge systems in sustainable development; Issues in Sustainable Development, sustainable development in developed and developing nations, Gender and livelihood, Economic versus Environmental sustenance; concepts of environmental economics, environmental accounting, resource pricing, greenhouse gases and implications on global trade etc.

MODULE - VI

Environmental Impact studies- EIA – meaning, significance and framework; Methodologies – checklist, matrices, network and social cost-benefit analysis; sources and acquisition of environmental information; Environmental land use classification; Environment impact studies of development projects.

Field work- Visit to a local area to document environmental assets river/forest/ grassland/hill/mountain; Visit to a local polluted site-Urban/Rural/Industrial/ Agricultural; Study of common plants, insects, birds; Study of simple ecosystems pond, river, hill slopes, etc.

Text books/ Reference Books:

1. Sustainable Cities for the Third Millennium: The Odyssey of Urban Excellence, Mega Voula, Springer
2. Sustainable Cities: Urban Planning Challenges and Policy, Kimberly Etingoff, Apple Academic Press
3. Sustainable Development Handbook, A Roosa Stephen, Fairmont Press
4. Sustainable Cities, David Satterthwaite, Earthscan, 2009
5. Sustainable Energy Management, Golusin Mirjana, Elsevier
6. Environment and Development: China and India, Pachauri, R.K., TERI

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6S1	URBAN PLANNING STUDIO		9	0	0	9	100	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	The objective of this studio program is to expose the student to study and establish appropriate planning standards, techniques of population projections, Identification of the data to be collected and the sources thereof, organizing surveys and collecting socio economic, traffic and other data, Using selected computer software to analyze the data, Projecting the future demand with different scenarios and identification of Action Areas (i.e., specific problems related with housing, services, circulation, etc.).	2, 3, 4, 7, 8, 9, 10, 11	3, 4, 5, 6

MODULE - I

Understanding Legal Framework Review of legal framework (Urban Development Acts) Review of Development Plans, Identification of Urban Developmental Planning Issues Review of literature.

Selection of City for Plan Preparation Based on the geographical location, population size, Functional category, rate of growth four cities are to be identified and methodology for data collection is to be evolved.

A ten day visit to each of the cities by group of students visit the selected cities, prepare existing land use (broad). Collect necessary secondary information, discuss/survey public about the problems, vision etc.

Plan preparation of a strategy plan for the overall short and long-term development of the village

Plan preparation: Two minor exercises in Population projections, City Sanitation Plan, CDM, and Transportation plan or Environmental impacts of urbanization.

Identifying Long-term and short term goals, Objectives identified and quantified within two time five year time frame. Converting actions into physical plan & Projectization of the plan proposals.

SWOT analysis of available resources and funds. Plan preparation: The output of the studio exercise shall be in the form of preparation of a strategy plan for the overall short and long-term development of the village.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6SE1	SEMINAR (EMERGING PLANNING CONTEXTS, ISSUES AND ALTERNATIVES)	0	0	2	2	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To undertake selective reading	1, 4, 5	1, 2
CO2	To learn the art of argument and counter argument	2, 8, 9	3, 4
CO3	To learn the dos and don'ts in public speaking	1, 9, 10, 12	1, 2
CO4	To formulate and write reports	4, 5, 9	4, 6
CO5	To participate in informed discussion & write assignments	4, 5, 9	3, 6

MODULE – I

Infrastructure- Public private partnerships, capacity building, integrated infrastructure, community participation, land acquisition, public distribution systems and solid waste management

MODULE - II

Transportation- Logistic hubs, CNG vehicles, trams, BRTS, MRTS, LRTS, MMTS, bus bays, road safety, transportation for target groups – children, adults, handicapped and women, pricing and funding of transport systems

MODULE - III

Environment- Carbon footprints, eco-housing, eco-city, ECOSAN, green buildings, renewable energies, sustainability, green cities, carbon credits, utilization and conservation of natural resources

MODULE - IV

Disaster Management- Vulnerability and capacity assessment, land use management, community based disaster risk management, rehabilitation and resettlement

MODULE – V

Rural Development- Sustainable agriculture, waste land management, rural industrialization and use of non-conventional energy, information technology, self-help groups and non-government organizations, PURA, village clusters concept.

MODULE - VI

Information Systems- Management information systems, municipal information systems, land information systems, intelligent transport systems, geographic information systems and passenger information systems

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6PT1	PRACTICAL TRAINING-I	Nil	Nil	Nil	Nil	Nil	Nil	P/F

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6W1	PLANNING WORKSHOP II (INFRASTRUCTURE STUDIES)	1	0	1	2	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To review of infrastructure systems, how they work, and the role of planners in the provision of these services. The course then discusses how infrastructure planning might be the best approach to managing growth, offering a potentially more effective means of directing the timing and intensity of development in a community.	2, 3, 4, 5, 9, 10, 11, 12	3, 4, 5, 6

MODULE - I

For the purposes of the planning workshop, the following areas need to be covered:

1) Solid waste management

2) Domestic water supply

3) Sanitation and storm water drainage

4) Electrical services

5) Roads and circulation pattern

Benchmark service level parameters against standards, develop small proposals for improvement

This is individual exercise where each student will choose one city/town and look at all parameters for services like SWM, water supply, sanitation & storm water drainage, roads and compare against standards to analysis the shortfalls in service levels and finally suggest small proposals for improvements. During this study students document the best practices if any within the specified sectors in city/town selected. Exercise in this may be followed by Sustainable Area Development Plan.

Sustainable Area Development Plan

Students will be divided into small groups and each group will choose one infrastructure system to study all aspects of sustainability of that infrastructure system and come up with proposal/recommendations for making the area self-sustainable. Aspects of sustainability like sewerage treatment plan recycle and reuse of waste water, rain water harvesting, SWM (vermin composting, waste to energy, etc.), parking & predestination and electrical sub stations.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6E1	ELECTIVE 2 : I. SEMINAR ON ETHICS, VALUES, PHILOSOPHY	0	0	3	3	100	-	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To undertake selective reading	1, 4, 5	1, 2
CO2	To learn the art of argument and counter argument	2, 8, 9	3, 4
CO3	To learn the dos and don'ts in public speaking	1, 9, 10, 12	1, 2
CO4	To know th importance of decision making process	4, 5, 9	4, 6
CO5	To participate in informed discussion & write assignments	4, 5, 9	3, 6
CO6	To accomplish consensual decision making and list the code of professional conduct.	4, 9, 10, 12	4, 6

MODULE - I

The value-crisis in the contemporary Indian Society; The nature of values: the value spectrum for a good life; The Indian system of values.

Material development and its values; the challenge of science and technology; Values in planning profession, research and education.

MODULE - II

Psychological values; integrated personality; mental health; Societal values: the modern search for a good society; justice, democracy, rule of law, values in the Indian constitution; Aesthetic values: perception and enjoyment of beauty; Moral and ethical values; nature of moral judgement; Spiritual values; different concepts; secular spirituality; Relative and absolute values; humanism and human values; human rights; human values as freedom, creativity, love and wisdom

MODULE - III

Canons of ethics; ethics of virtue; ethics of duty; ethics of responsibility; Work ethics; Professional ethics; Ethics in planning profession. Management by values: professional excellence; inter-personal relationships at work place; leadership and team building; conflict resolution and stress management, management of power

MODULE - IV

Philosophy as differentiated from science definitions of Philosophy, methods. Major philosophical thinkers of the world and of India and their ideas from Socrates to Mahatma Gandhi and S. Radhakrishna

exploratory studies in relating these ideas to planning, particularly planning contexts, utopian ideals, values, process, goals, social forces, ethics and management, etc.

MODULE - V

Epistemology and its ideas as related to planning doctrine of innate ideas, empiricism, rationalism, critical theory of knowledge, skepticism, evolutionary theory of knowledge, genetic theory of knowledge, intuitionism, logical empiricism, the dialectic method.

Tests of truth realism, pragmatism and idealism causation idea of causality and finality – contingency. Naturalism, mechanism, organism views teleology creationism and other theories. Ontology materialism and dialectic materialism. Theories of the mind, self and freedom of the will. Theories of value and reality.

MODULE - VI

Review of the basic tenets of the various schools of Indian philosophy and isms and explorations of their possible relation to planning in the Indian contexts the Vedas, Brahmana's, Upanishads, Sankya, Yoga, Nyaya, Vyseshika, Mimamsa, Saiva Siddhanta, Tantra, Vedanta, Buddhism, Jainism, etc. Gandhi's philosophy of Ahimsa, Satyagraha, Swarajya and rural development as alternative paradigms to planning in India.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6E2	ELECTIVE 2: II. SEMINAR ON CHANGING CONTEXT FOR PLANNING IN RELATION WITH OTHER DISCIPLINES.	0	0	3	3	100	-	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To know the planning issues in the profession and involvement of other disciplines planning	3, 4, 5, 9, 10, 12	4, 5, 6
CO2	To know about other disciplines dealing with urban issues and its relationship with others.	4, 7, 8, 11	2, 4, 5

MODULE - I

Current Management Studies and Practices, Financing Projects and Project Formulation which is being encroached by other Disciplines. Where the weightage of a Planner as a Technical expert is facing a threat to the Profession of Planning. The challenges faced by a planner as a practitioner and to cope up with the competition across other disciplines.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VI	PL21B6E3	ELECTIVE 2: III. CULTURE AND CITIES	3	0	0	3	100	-	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the culture and its impact on planning& development	1, 7, 10	1, 2
CO2	To know the relation of culture with society and planning.	4, 7, 8	2, 3
CO3	To know the planning interventions with respect to changes in technology	2, 4	3, 4
CO4	To know about city forms and evolution process	2, 3, 7	2, 3, 4
CO5	To investigate Planning with respect to changes in culture & evolution.	4, 7, 9	2, 4, 5
CO6	To learn planning changes in rural and urban India wrt Culture.		

MODULE - I

Definition and Concept of culture - Concept and characteristics of culture and civilization, economic and social organizations, transmission of culture.

MODULE - II

Culture Traits- Cultural traits of ethnic groups and their expression in built form. Mixed culture and global culture.

MODULE - III

Role of Technology in Culture- Role of technology in changing arts, culture, aesthetics, built form and structure of human habitat.

MODULE - IV

City forms and Culture- Overview of city forms and evolution processes: Visual appreciation of the city forms across cultures

Basic Concepts of Societies: Rural Society, Urban Society, Industrial Society, Post-Industrial Society, Traditional and Modern societies, Peasantry, Agrarian Social Structure, Rural-Urban Continuum, Rurbanism.

MODULE - V

Space and Time Changes of Culture- space and time - taking examples from specific urban centres of importance in the context of aesthetic, cultural and technological evolution.

Growth and Development: Emergence of Social Differentiation, Occupational Specialization, Division of Labour, Urbanism as a way of Life, City and Village.

MODULE – VI

Processes of Change in Rural and Urban India: Urbanization, Migration, Land Reforms, Green Revolution, Change in the Family, Class, Caste, and Gender Relations. Consequences of Change in Rural and Urban India. Rural and Urban Poverty, Marginalized Groups (Bonded labour, Landless, Tenants, Artisans etc.), Uneven development of Regions and social groups.

Case Study- Visual study of the city - artefacts and the urban arts: Understanding of urban form through study of landmarks and elements of visual interest in the city through interactive learning processes.

Text books/ Reference Books:

1. City Planning in India, 1947–2017 By Ashok Kumar, Sanjeev Vidyarthi, Poonam Prakash
2. City Culture and City Planning in Tbilisi: Where Europe and Asia Meet Hardcover – Import, 1 February 2009, by Kristof Van Assche (Editor), Joseph Salukvadze (Editor), Nick Shavishvili (Editor)

SEMESTER – VII

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VII	PL21B7C1	IMPLEMENTATION AND FINANCING OF URBAN PROJECTS	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To explain methods of evaluation of development plans and implementation strategies	1, 2, 4	1, 2
CO2	To evaluate alternate development plans and policies.	2, 3	4, 5
CO3	To understand funding and financing of urban projects.	4, 11	2, 4
CO4	To understand project implementation and urban management in the regions (PPP models)	4, 10, 11	2, 4, 5
CO5	To Explain the policy preparation and implementation process	3, 4, 6, 11	2, 5, 6
CO6	To understand the activities and plans for institutional enhancements	4, 10, 11	2, 5, 6

MODULE - I

Identifying urban projects for implementation & Municipal finance - Process of identifying various urban sector projects with scope for funding and implementation, identifying the risk mitigation during project development & implementation

Municipal Finance- Nature and composition of income and expenditure, limitations and need for revenue enhancements through municipal internal resource mobilization i.e, Municipal taxes (advertisement, entertainment and stamp duty etc.); Land based taxes (vacant land tax, change of land use, development charges); user charges (parks, playgrounds, water supply, sanitation, SWM, parking), property tax. Expenditure control methods and mechanisms – privatization of O&M of municipal civic services.

MODULE - II

Policy support and budgetary allocations for implementation & financing of urban projects 13th finance commission recommendations and 11th five year plan; budgetary allocations from central and state government for urban development; grants and funding under various government schemes. Assistance from foreign donors and multinational agencies (external aids form world bank , ADB)

MODULE - III

Additional Funding Sources- FDIs, Institutional finance – HUDCO, NHB, LIC, ILFC(infrastructure lease finance corporation), etc.; PPP mechanisms- India infrastructure project development fund by MoUD, GoI, Pooled finance development fund, National urban infrastructure fund, scheme for financing viable

Infrastructure projects through SPV (Special purpose vehicle) – India infrastructure finance company Ltd,.

Resources based on achievement of urban reforms- Role of state government and ULBs; City's challenge fund; urban reform implication on resources, initiative fund and state level funds related to reforms.

MODULE - IV

Implementation of urban projects- Internal capacity building of ULBs to new concepts of financing urban projects; role of various agencies (Urban Development Authority, ULB, Water board, etc.) in implementation of municipal projects, challenges and opportunities for PPP in implementation of urban projects, Creating enabling environment for implementation of urban projects through PPP – PPP projects process management, scheme for financial support to PPPs in infrastructure, viability gap funding (VGF) – Government support, approval process, appraisal & monitoring, disbursement of grant.

MODULE - V

Institutional capacity enhancement- Better finance management, management process – accounting and budgeting, asset management, receivables management, cost centre approach, computerization as tool for resource enhancement; role of management information systems.

Issues on privatization- Debates and issues on privatization Vs equity and social development – problems of equity and impact on social development due to privatization, critics against external and internal funding agencies for the urban projects

MODULE - VI

Plan forms and indices- Financial operating plan, city corporate plan, development of urban indicators, infrastructure pricing and financing, impact fee, subsidies

Text books/ Reference Books:

1. Municipal finance in India: Gokulananda Dash
2. Urban Governance and Management: PSN Rao
3. Urban Infrastructure Development in Small and medium Towns: SS Dhaliwal.
4. Urban Development and Management: SLGoel. & SS Dhaliwal.
5. Local Government Finance and Bond Markets; Yun-Hwan Kim, ADB.
6. Urban Property tax reform: Guideline and recommendation: WilliamR.Dillinger.
7. India Infrastructure reports
8. International Handbook on Public Private Partnerships: Graevne A .Hodge, Carsten Greve, Anthony E. Boardman.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VII	PL21B7C2	URBAN GOVERNANCE & MANAGEMENT	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To Understand the organizational structure and powers and functions of municipalities in India.	1, 3, 4	2, 3
CO2	To explain the roles and responsibilities of non-municipal institutions in urban governance and management	1, 7, 8	2, 5
CO3	To refer the municipal organogram and relate the municipal functions with functionaries.	1, 7, 11	2, 3
CO5	To achieve Knowledge about the different types and structures of decision making involved in planning.	1, 3, 11, 12	1, 2
CO6	To understand the indicators and innovations of good governance.	1, 4, 11	2, 4

MODULE - I

Introduction to Urban Governance - Meaning: governance and government; Concepts, scope of governance, evolution of concept of governance; Theories of local government; History of urban local bodies in India, evolution of modern urban local governments during British rule; Decentralization of local governments; Recommendations of various committees; Politics and progress of decentralization.

MODULE - II

Urban Development- Urban development in India; problems and issues, policies, programmes and provisions in the national five year plans; processes of decision making for urban development at national, regional, state, district and local levels.

Urban Management - Definition, objectives and scope of management; Role of management in developing economy; scope of development management at National, state & local levels.

MODULE - III

Local Governance- Determinants and indicators of good governance; citizen charter, right to information and other instruments, stake holders, their perception and role in urban management, local governance.

Urbanization & Public-Private Sector- Process of urbanization, developmental conflicts, resource constraints, system deficiencies, urban poverty and exclusion from development process. Urban development bodies; urban development authorities, background, function, powers, organization structure and resources; Case Studies, role of NGOs and private organizations in Urban Development. Urban Reforms and its implications on Urban Development.

MODULE - IV

Governance in post 74th Amendment Scenario- 74th Constitutional Amendment-XII schedule, decentralization of powers and functions; Local and participatory planning, bottom up, decentralized and integrated planning processes; Planning, governance and spatial strategy; Best practices of planning and quality of governance.
MODULE - V
Political Systems, Leadership, Decision-making, & Conflicts- Importance of effective communication and soft skills in management, introduction to theories of decision making; rational theory, incremental theory, systems theory, game theory, conflict theory, Planner's functions as a leader, urban development manager & role in the decision making process, Democracy and planning, Nature and mode of resolution of conflicts; public participation in planning as an aid to better understanding planning and implementation.
MODULE - VI
Governance Innovations- The application of E-governance, M-governance, and SDI-governance in disaster management, public service delivery, and effective local governance.

Text books/ Reference Books:

1. Urban Development and Management: S.L. Goel, S.S. Dhaliwal: Deep and Deep Publications Pvt. Ltd.
2. Urban Infrastructure Development in Small and Medium towns: Dr. S. S. Dhaliwal; Deep and Deep Publications Pvt. Ltd.
3. Urban Development, Satish Tiwari; Anmol Publications Pvt Ltd, New Delhi
4. Reading Material on Development Management: N S Saini Institute of Town Planners, India New Delhi.
5. Decentralized Governance and Planning: Acompartitve study in three south Indian states @2001 by Abdul Aziz, Macmillan publication.

SEMESTER	Course Code	Course Title	L	S	P/ O	C	Int. Marks	Ext. Marks	Total Marks
VII	PL21B7C3	PROFESSIONAL PRACTICE	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the planning process at different levels	1, 2, 3	2, 3
CO2	To know the role of people, experts and organizations in planning practice/ projects	1, 3	1, 2
CO3	To know the role of planning in planning practice/ projects and other development activities.	1, 7	2, 3
CO4	To understand the Knowledge work order, tenders, and valuation	1, 10, 11	2, 3, 4
CO5	Understanding Knowledge of contract, type of contract, contract document.	1, 10, 11	2, 3, 4

MODULE - I

Scope of Professional practice- Scope of services for different scales of planning like Master plan for a city, Zonal/ District plan, sector/neighbourhood plan, layout or group housing schemes, commercial centres, industrial estates; consultancy chares, nature of engagements, agreements and safeguards, completion and copyrights.

MODULE - II

Organization, Scope and Scale of Charges: Aims and objectives of professional institutes, sister bodies; professional roles and responsibilities of planning consultants; professional ethics; responsibilities towards clients, fellow professionals and general public.

Scope of services for different projects like master plan for urban area, zonal/district plan, sector/neighborhood; layout, group housing schemes, commercial centres, industrial estates etc.; constancy agreements, and safeguards; fees and scales of professional charges, competitions and copyrights.

MODULE - III

Role of Planner: Planner's input as professional at various levels and organizations, his role in decision making processes, relevant issues; generalists vs. specialists, professional vs. technocrats, planner as decision maker vs. advisor to decision maker; relationship with client, developers, institutions and contractors; relationship with other experts such a engineers, architects, sociologists, economist, lawyers, etc. For specialized studies related to planning.

MODULE - IV

Valuation Fundamentals of valuation, ownership of land, compound interest theory calculating for present value, concepts of economic rents and social rents, property taxes, sinking fund, annuity depreciation, valuation tables; legislative framework rent control, land acquisition, easements and their effects on properties. Purpose of valuation for wealth tax, income tax, capital gains tax, property tax, gift

tax, etc.
MODULE - V
Methods of Real Property Valuation Income capitalization methods, land and building method and other methods of valuation. **Contract Documents and Project Formulation**-Tenders, contracts, arbitration, schedule of rates for construction; materials labour and equipment for land development, units and mode of measurements, rate analysis; formulations of project proposals and outline;
MODULE – VI CO5
Preparation of and response to Notice Inviting Tenders, Expression of Interest, Terms of Reference, penalty clauses, etc.

Text books/ Reference Books:

1. Estimating, Costing and Valuation: Professional Practice and Quantity Surveying, S. C. Rangwala, Charotar
2. Professional Practice, K.G. Krishnamurthy and S.V. Ravindra, PHI Learning Pvt. Ltd., 2014
3. Urban and Regional Planning In India : A Handbook for Professional Practice, S. K. Kulshreshtha, New Delhi, Sage, 2012

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VII	PL21B7C4	LAND MANAGEMENT	0	0	3	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the concepts and definitions of land management and land value	1,2	1,2
CO2	To synthesize about land use in planning process	1,2	2,3,4
CO3	To synthesize about land value in planning process	1,2,3	3,4,5,
CO4	To valuate land and property	2,3,4	3,4,5,6
CO5	To evaluate land and real estate development and the supply side management of land	2,3,4	3,4,5
C06	To evaluate land in terms of demand side management	2,3,4	3,4,5

MODULE - I

Definitions and concepts of land management (e.g. land tenure, land administration and land transaction) and the importance and functionality of land and property data.

Introduction to the meaning of land value for individuals and government, how land values arise and how values can change depending on different land related factors.

MODULE - II

General approach of land use and land use changes in urban and rural areas, on the general process of land use planning as well as on key instruments and stakeholder involvement that accompany the land use planning process.

MODULE - III

Changing land values in urbanized and urbanizing areas; land value capture taxes; land markets – legal and illegal in the core and fringe areas of metropolitan cities; property markets

MODULE - IV

Developments of land and land & property valuations: Process, cost of development, source of finance and financial calculation for real estate development. Valuation of land and property- Discounted cash flow method, development method etc.

MODULE - V

Land and Real Estate Development Economic concepts of land, Land Pricing / valuation; Economic principles of land use; demand forecasting for land use: factors affecting land supply and demand; Land development methods, Supply Management
MODULE - VI
Demand side Management; Real estate markets, type of property development and its impact on supply and demand, method of development, environmental considerations.

Text books/ Reference Books:

1. Government of India (2009), Guidelines for valuation of Immovable Properties, Directorate of Income-Tax, Ministry of Finance Tax (PR,PP &OL) Mayur Bhawan, New Delhi.
2. Government of India (2007), Model Guidelines for Urban Land Policy, Town and Country Planning Organisation, New Delhi.
3. Vidhyadhar K Phatak (2013), Land Based Fiscal Tools and Practices for Generating Additional Financial Resources, Ministry of Urban Development, GOI & World Bank. http://jnnurm.nic.in/w
4. Manitoba Intergovernmental Affairs and City of Winnipeg's Planning, Property and Development, Department of Planning and Land Use Division (2002), A Guide for Developing Neighbourhood Plan,USA
5. Urban Land Use Planning by F. Stuart Chapin Jr., Harper 7 Brothers, Publishers, New York, USA

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VII	PL21B7S1	METROPOLITAN AND REGIONAL PLANNING STUDIO	0	10	0	10	100	100	200

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To synthesize knowledge and skills obtained in the core courses in planning in order to prepare a plan for a regional plan for metropolitan city	1, 2, 4	1, 2, 3
CO2	To understand the association amongst land, demography, environment, economy and equity in an urban settlement	2, 3, 4	4, 5, 6
CO3	To prepare base map of the planning area featuring all physical elements	4, 6, 8, 9, 11	5, 6
CO4	To formulate alternatives planning interventions	4, 7, 8, 9, 11	5, 6
CO5	To develop the sector wise development proposals	4, 9, 11	4, 5, 6

MODULE - I

Introduction - Understanding the role and relevance of regional planning, critical appraisal of district/sub-district plans, District planning in context of 73rd and 74th amendment acts.

MODULE - II

Special Regions-The emphasis will be on exposing students to special regions like hill, tribal, industrial, agro, resource, coastal, eco-sensitive, backward or city regions etc.

MODULE – III

Literature Study- The students should be introduced to two small exercises based on the literature survey on Metro/Regional Planning/District Planning.

Study of Development Indices/Indicators: - Study of Development Indices/Indicators, legislative framework for the concerned study areas selected (metro regions, districts) which will be based on secondary data sources. This is to create and understanding about the process of metro/regional/district planning amongst the students.

MODULE - IV

Data collection and Surveys: - The students will be divided into two or three groups and take up the district selected based on the development criteria. The groups will have to formulate goals, objectives, methodology, and identification of data source, analysis of data available, survey and preparation of schedules for the study area selected.

MODULE - V

Fieldwork- Visit to the field study area; conducting surveys, collection of data from secondary sources, sectoral and block/Mandal wise will be undertaken.

Data Analysis- Data Analysis and Proposals: Detailed data analysis, identification of potential thrust areas and development issues both sectoral and block/Mandal wise. Appropriate alternate strategy planning, settlement development strategy and programs.

MODULE - VI

Pre-Project Report- Student shall submit a formal report on any topic and this shall be based on extensive literature survey, data collection.

The Pre-project report will form the preliminary work on which the students planning project (VIII Semester) could be based.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VII	PL21B7TH1	PRE –THESIS	0	3	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To formulate a research framework and review literature	3, 4	3, 4
CO2	To find research gap and formulate aims and objective	3, 4, 5	3, 4, 5
CO3	To frame the research questions and define the scope and limitations	3, 4, 5	2, 3, 4
CO4	To finalize the data requirement and finalize the types of survey required	2, 3, 4	4, 5, 6
CO5	To write the synopsis with aim, objectives, methodology, scope and limitations	4, 5	4, 5, 6

MODULE - I

In Pre-thesis, the student is expected to finalize the synopsis comprising of the aims & objectives, scope & limitations and methodology. The pre-thesis work should focus on the theoretical approaches to the topic based on extensive literature review and secondary data collection. Pre-thesis would become the preliminary work on which the students planning project in the next semester would be based.

Students will have to submit a detailed proposal on the chosen topic. The topic has to be approved by the committee and supervisor. Periodic reviews will be held to facilitate exchange of ideas, clarify the issues of concern and pave the way for further study in the planning project. Emphasis will be placed on clear understanding of the topic so that the student can work independently on the terminal project subsequently.

Each student shall present a formal report and a seminar for final assessments. Internal marks will be equally awarded by the subject teacher and the allotted

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VII	PL21B7E1	ELECTIVE 3 : I. PLANNING WORKSHOP III (REDEVELOPMENT)	0	0	3	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To identify the built forms, land parcels and historic neighborhoods for redevelopment	1, 7, 8	4, 5
CO2	To assess the form, extent and direction of planning interventions for redevelopment	1, 4	4, 5
CO3	To know the heritage area developments and historic settlements	3, 8	2, 3
CO5	To know the laws to protect heritage in India	1, 2, 7	2, 4
CO6	To appreciate both the tangible and intangible aspects of redevelopment and conservation	3, 7, 8	3, 4, 5

MODULE - I

This course is designed to expose students to hands - on, primary involvement with those typical problems/projects existing within a Settlement (Urban/Rural) that require interaction with experts and implementing authorities/line departments in a focused way.

MODULE - II

Enhance learning through a combination of lectures, demonstrations and interactive practical exercise session on topics such as Redevelopment, Conservative Surgery, Repair, Restoration, Conservation, and Conservative Up-gradation.

Inner city improvement, Urban renewal, Rehabilitation, Civilizational Characteristics Retention, Traditional and Cultural built forms Conservation as a tool/product of Urban renewal.

MODULE - III

Historic landscape developments, Heritage (Natural/Cultural) Area developments, Archaeological Areas Interface to the existing modern developments, Designated Traditional area architectural & planning documentations, signage and Infrastructure design within an existing Settlement (Urban / Rural/ Region).

Following surveys related to a Settlement (Urban/Rural) aspects should be conducted: Listing, Cultural geography, Traditional/ Historical/Old/Rural settlement

MODULE - IV

Morphology including networks and people (Population), People, Time/Tradition/ Heritage, Place link identification and listing , usability, reuse, sensitive use, diversion, low impact creating developments, past and present needs of the location studies, Characteristic features like Road width, Built form to Plot

relationships, volume of streets for retaining the old / traditional/ Heritage character,
MODULE - V
Studies relating to laws of protection for Heritage (Natural/ Cultural). Preparation of Area redevelopment Plan/any such related plans as stated above by studying the existing land use, existing circulation pattern, level of service etc.
MODULE - VI
Urban Conservation and Development: Understanding the context of both built heritage and historic neighborhoods; Conservation: socio-economic and traffic management aspects; Redevelopment of brown fields; Heritage conservation - case studies

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VII	PL21B7E2	ELECTIVE 3: II. PLANNING WORKSHOP III (INDUSTRIAL AREA PLANNING)	0	0	3	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To Achieve Knowledge of Planning in industrial areas and special area planning.	1, 3	1, 2, 4
CO2	To understand EIA of industries and type of industries.	1, 2, 3	2, 4
CO3	To understand the effects and pollution mitigation techniques of industries	2, 3, 4	2, 4, 5
CO4	To do appraisal and analysis of an industrial area.	4, 8, 11	4, 5, 6
CO5	To do spatial analysis of an area.	8, 11	4, 5
CO6	To do environmental analysis of an area. (EIA, Noise, air & land pollution)	4, 8, 11	4, 5, 6

MODULE - I

Introduction to Industrial areas planning- Introduction to the Industrial Plans and Policies at the state and national level; understanding of the relevant regulations under other allied public institutions such as Environment, Town planning or Urban Municipalities;

MODULE - II

Types of Industries- Classification of industry types (Red, Orange, Green etc.)

Industrial Area Ratings-Introduction to green industrial area ratings such as IGBC etc.;

EIA -understanding of Environmental Impact assessment (EIA) and Environmental Management Plans (EMP);

MODULE - III

Pollution and Industries-Significance of landscape in abatement of ill effects of industries, conventional and emerging technologies and techniques for treatment of industrial wastes.

MODULE - IV

The students in groups are expected to select an existing industrial area or a brownfield in the region and carry out a spatial and environmental analysis of the site.

Appraisal and analysis of Industrial area/brownfield- Selection of Industrial area/brown field and appraising the existing situation of the industrial area.

MODULE - V
Spatial Analysis- This may include (but not limited to) – siting of the industrial area; spatial linkages; evaluation of existing land uses and transportation network.
MODULE - VI
Environmental Analysis- EIA; air, water, noise and land pollution; waste management; benchmarking of service infrastructure; impact of industries on the health of the employees and residents etc.

SEMESTER VIII

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VIII	PL21B8C1	PROJECT DOCUMENTATION	3	0	0	3	100	0	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To know about types of reports and thesis report writing.	1, 4, 5	2, 3
CO2	To get knowledge about project document, Report & Costing and make one for thesis	1, 4, 5	2, 3
CO3	To do costing analysis and a project schedule for thesis	1, 3, 4	4, 5
CO4	To know the risks in project making.	3, 4, 11	3, 4, 5

MODULE - I

Types and classification of reports- Types of reports, difference between technical, scientific, legal and other types of communication; specific characteristics of technical writing

MODULE – II CO2

Introduction to project documentation- Introduction to different components of a project documentation; format and elements of – notice inviting expression of interests (EoI).

Documentation- Quotation documents, expression of interest (EoI) reporting, tendering process, technical and financial tender documents, evaluation of bids, request for detailed proposals (RFPs), terms of references (ToRs).

MODULE – III CO2

Reports- Detailed feasibility reports, compliance reports; inception reports, closure documents, etc.

Making of a project document- Assignment to make a project document; introducing styles and formats of official communication and letters.

MODULE – IV CO2

Costing- Request for specifications and quotations; bidding process; recording or minutes and agenda notes for official records.

MODULE – V CO3

Project Schedule- Project Management design, development and deployment, project management key performance metrics for project success, tools and techniques.

MODULE – VI CO4

Manage Communications and Risks- Communicate project information and updates effectively, determine risk management options, iteratively assess and prioritize risks.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VIII	PL21B8TH1	PLANNING THESIS	0	15	0	15	200	200	400

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To arrive at a spatial planning solution preceded by an extensive and intensive analyses of socio- economic, physical, institutional and statutory aspects	2, 3, 4, 5, 7, 8, 9, 10, 11	3, 4, 5
CO2	To write a thesis identifying and analyzing the issues following research principles and suggest planning imperatives	3, 4, 5, 7, 8, 9	4, 5, 6

MODULE - I

Each student of B. Tech Planning is required to prepare a dissertation / project on a subject concerning urban, rural or regional development under a guide/adviser as approved by the Head of the Department. The dissertation / project will provide aid, opportunity to the student to synthesize the knowledge and skills acquired through the learning of various theories and practices during the course.

The particulars of schedule, content, presentation, format, etc., as decided by the department from time to time, shall be strictly followed. The course work is generally divided into four stages namely Introduction/need for the study, Data collection/ literature review, case study and analysis of data and recommendations/ proposals.

At the end of the semester, each student is expected to submit all original drawings prepared as per the department's specifications, copies of the report in the specified format and in a soft copy and a physical or digital / virtual model should be submitted to the department after obtaining the approval of the respective guide/ adviser.

The department shall schedule the final viva voce, at its convenience, only after the receipt of the thesis submission by a student.

SEMESTER	Course Code	Course Title	L	S	P/ O	C	Int. Marks	Ext. Marks	Total Marks
VIII	PL21B8PT1	PRACTICAL TRAINING- II (Six weeks including summer vacation)	Nil	Nil	9	9	0	100	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To develop an understanding of the process and methods of undertaking live planning projects	3, 5, 11	2, 3
CO2	To get experience in the multi-disciplinary team of a live planning project	4, 10, 11	2, 3
CO3	To understand various aspects of spatial planning including exploring specialized fields	4, 11, 12	2, 4, 5
CO4	To make use of the experience gathered in the internship in studio exercises and other subjects	4, 9, 11	4, 5
CO5	To find the individual knowledge and skill gap and take corrective measures thereof	4, 8, 10, 11	2, 4, 5

MODULE - I

Each student will be required to undertake minimum ten weeks of compulsory training in an approved private or public planning office (the Chief Planner in the office should be a member of the Institute of Town Planners, India and have a minimum of five years of practical/professional experience after her/his post-graduation) during the semester. The place of training is to be determined in consultation with the training supervisor (internal faculty-in-charge).

Students are expected to maintain a weekly log book of tasks undertaken and get feedback from training supervisor within one week of start of training.

The students are expected to submit a report highlighting the profile of the planning office, its organization, key work areas, etc., tasks undertaken based on a weekly log during the training and details of methods employed.

The students will submit relevant drawing/visuals and a report on the training. The students will also make presentation to the External Jury.

A jury will evaluate this report at a viva voce. After submission of the report the department at its convenience will arrange for the conduct of the viva voce examination.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VIII	PL21B8E1	ELECTIVE 4: CLIMATE CHANGE AND PLANNING	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand basic concepts of climate change and to make students aware of the scenario of climate change	1, 2, 3	2, 3
CO2	To know the significance of climate change resilience of cities in addition to adaptation and mitigation strategies	1, 2, 3, 8	3, 4
CO3	To appreciate the role of settlements in climate change mitigation	3, 8	1, 2
CO4	To address impacts of climate change through application of adaptation strategies and will be able to contribute in planning for low carbon and climate resilient development	3, 5, 8	2, 3
CO5	To Understanding the implications of International and National frameworks, agreements	2, 3, 8,	3, 4
CO6	To Importance of adaptation in preparing and coping with climate change;	3, 4, 8, 9, 12	3, 4, 5

MODULE - I

Introduction to climate change- Climate and weather, concept of climate change, global warming, Ozone Depletion, global wind systems, Greenhouse gases/emissions, Global energy balance, surface energy balance, hydrological cycle, atmosphere and oceanic general circulation as related to climate, changes in global mean sea level, natural and anthropogenic variability change, Changing perspectives in man-environment relationship, Eco-city approach.

MODULE - II

Planning in Resilient cities, sustainable spatial planning (city-based exercise), Risk due to climate change, risk assessment, impacts due to flooding, cyclones and landslides, impacts on infrastructure, urban governance and participation; Resilience in cities. Climate Change and Related Case Studies.

MODULE - III

Climate Change and Related Sectoral Issues- Agriculture, Health, Water and sanitation, food security, eco-system, Poverty and shelter, Disaster,

Urban Climate Change- Population, Land use planning, Urban Heat Islands, Local climatic changes, Sectoral emission – residential, industrial, transport, waste disposal, reducing emissions and urban carbon footprints, carbon trading and other alternatives.

MODULE - IV

Climate Change Impact Assessment- Policy issues- Key Socio-economic Impact Issues, Impacts of changing climate, Vulnerability and coping with impacts, Environmental Impact and Strategic Environmental Assessment, Ecological Footprint Analysis for cities, Sustainable Lifestyle Assessment, Ecological Footprint Analysis for cities

MODULE - V

Mitigation and Adaptation to Climate Change- Mechanisms and measures for mitigation and adaptation to climate change at various levels- Carbon emissions trading, Ecological Footprints.

Climate Change and Governance/ Legislation- Institutional Mechanism, Plans, Policies and adaptation strategies.

MODULE - VI

Adaptation – Towards Climate Resilient Cities Climate change adaptation, migration as adaptation, climate change experiments and alternatives, Climate change, vulnerable regions and groups - tropics, farmers, gender, children, poor and migrants.

Text books/ Reference Books:

1. UN- Habitat, Cities and Climate Change: Global Report on Human Settlements 2011
2. UN-Habitat, Planning for Climate Change , A STRATEGIC, VALUES-BASED APPROACH FOR URBAN PLANNERS
3. UN-Habitat, Local Leadership for Climate Change Action
4. UNEP, Mainstreaming Climate Change Adaptation into Development Planning: A Guide for Practitioner.

SEMESTER	Course Code	Course Title	L	S	P/O	C	Int. Marks	Ext. Marks	Total Marks
VIII	PL21B8E2	ELECTIVE 4: TECHNOLOGY IN MANAGING CITIES	3	0	0	3	50	50	100

COs	Course Outcomes	POs	BTLs
	The student will be able		
CO1	To understand the importance of technology and its application in urban planning	1, 2, 3	2, 3
CO2	To know various technologies emerging in urban infrastructure	3, 4, 8, 11	3, 4
CO3	To learn about new infrastructure interventions industrial area planning	4, 11	2, 3, 4
CO4	To know about smart energy management systems	2, 4, 6	2, 3
CO5	To Achieve Knowledge on new city development concepts like smart cities.	4, 7, 8, 11	3, 4
CO6	To understand Relationship between technology, government and planning	2, 3, 4	2, 4, 5

MODULE - I

Introduction to Planning and Technology- Trends of Urbanization and symbiotic relationship between Technology and Urban Growth, Development of new urban technologies and spatial planning, Past, Present and Future of Cities, Planning cities and local technologies, emerging conflicts within the historical and technological context of urban policy and planning in the present century.

MODULE - II

Emerging and Future Infrastructure- Spatial data as infrastructure; Impact of technology on infrastructure; Other concepts, components and frameworks. Conceptualizing cities as complex socio-technical systems, General implications of digitalization, Perspectives on Smart Cities.

MODULE - III

Smart Road Infrastructure and Building Properties- Smart Road Infrastructure - Transportation and technology, Lighting, Connected Streets, Parking Management, Connected Charging Stations.

Smart Building Properties - Safety & Security Systems, Smart Garden & Sprinkler System, Smart Heating & Ventilation. Telecommunication – health and education

Smart Industrial Environment- Forest Fire Detection, Air/Noise Pollution, Snow Level Monitoring, Landslide and Avalanche Avoidance, Earthquake Early Detection, Liquid Presence, Radiation Levels, Explosive and Hazardous Gases.

MODULE - IV

Smart Energy Management and Water Management

Smart Energy Management- Energy efficient technology for home, street, neighborhoods and city Smart Grid, Smart Meters

Smart Water Management- Potable Water Monitoring, Chemical Leakage, Pollution Levels in the Sea, Water Outflows, River Floods, Sanitation.

Smart City Services- Smart Kiosk, Monitoring of Risky Areas, Public Security, Fire/Explosion Management, Automatic Health-Care Dispatch.

MODULE - V

Smart cities - Smart cities: an emerging field, Defining smart cities, Smart cities framework, Digital cities, virtual cities, technology parks– smart planning and development– planning and Communication system – smart and environmental impact of Smart Cities, Risks of Intelligent Cities: Exclusion, Resilience, Security etc.

MODULE - VI

Technology and Local Government: Local Government and the changing role of Technology, Other Stakeholders and communities in building smart communities, participatory planning and the role of technology.

Text books/ Reference Books:

1. ARUP, "Smart Cities: transforming the 21st century city via the creative use of technology", 2010.
2. Brkovic, M.B. (2004) Planning in the Information Age: Opportunities and Challenges of E-Planning, CORP.
3. Komakech, D (2005) Achieving more intelligent cities, Municipal Engineer.
4. Getting Smart about Smart Cities, Institute for Sustainable communities, USDN Resource Guide. (Sustainable Communities Leadership Academy).

OPEN ELECTIVE

Note: Subjects can be chosen across the Departments of the university. The subject lists will be available with the Departments from where the students can choose the Elective.